

FINDINGS

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**CARDIOVASCULAR DISEASE KILLS
SOMEONE IN THIS COUNTRY EVERY 40
SECONDS. OVER OUR LIFETIMES, OUR
CHANCES OF DEVELOPING SOME FORM
OF CARDIOVASCULAR DISEASE ARE
GREATER THAN 1 IN 2.**

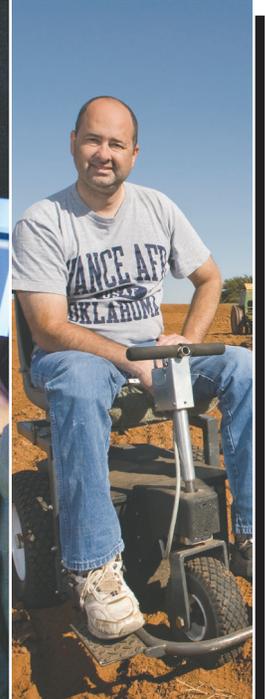
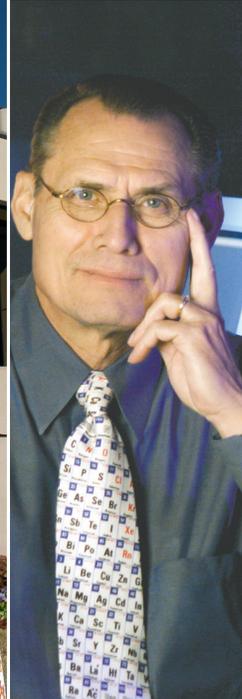
At the **Oklahoma Medical Research Foundation**, our scientists work each day to change those statistics. Already, that research has led to a pair of life-saving drugs that doctors now use to treat patients.

Please help us continue to find more effective ways to stop heart attacks, strokes and other devastating diseases.

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PLEASE GIVE TODAY.**



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CHAIRMAN OF THE BOARD Len Cason, Esq.
PRESIDENT Stephen Prescott, M.D.
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MANAGING EDITOR Shari Hawkins
ART DIRECTOR Jenny Lee
GRAPHIC ASSISTANT Rachel Smith
WRITER Ryan Stewart
PHOTOGRAPHERS Brett Deering, Ivy Studios, Steve Sisney
ILLUSTRATORS Brian Taylor, Graham Roberts, Eric Schock

405-271-8537 • 800-522-0211
findings@omrf.org

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For OMRF's creative team, it's all relative



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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and Counting!

I showed up a little late to the party.

By the time I arrived at OMRF in 2006, the *Findings*

bash had been in full swing for a decade-and-a-half. Already, OMRF had published almost 50 issues of the magazine, which reached tens of thousands of homes. It had won a fistful of top prizes in journalism contests throughout Oklahoma and even taken home the “Silver Quill” as the magazine of the year in a 14-state competition sponsored by the International Association of Business

What was once a black-and-white newsletter has become much, much more

Communicators. The magazine looked great and was chock full of interesting content: science, medicine and, most importantly, people.

In short, *Findings* was an OMRF institution. And though I was new to the organization, I knew a thing or two about not messing with success. So when it came to making decisions about the magazine, the biggest one I faced was what tie to wear for my cover shoot.

But it wasn't always this way.

For the first four decades of OMRF's existence, the foundation didn't have a regular publication. Communications with donors and friends might generously be described as intermittent.

In 1991, **Shari Hawkins** decided that had to change. Dr. William Thurman, OMRF's president at the time, had recently put Shari in charge of public relations at the foundation. When she sat down with some people to talk about OMRF's outreach efforts, they asked her a simple question: How does OMRF communicate with its supporters?



PHOTO: BRETT DEERING

A long silence followed. But one brainstorming session later, *Findings* was born.

The ensuing quarter-century has seen lots of changes. What was initially a black-and-white newsletter grew into a full-color magazine.

We worked hard to find stories that brought OMRF to life, with a focus on the human side of research. Our aim was to write articles that revealed the personal struggles and triumphs—both of patients and researchers—behind the science.

Visually, we tried to create a livelier palette, adding photographs that better evoked our subjects' personalities and sprinkling in illustrations and infographics. When the Internet took off, *Findings* went online. A downloadable version for e-readers soon followed.

Of course, we're not done yet. The magazine will always be a work in progress. Don't worry—*Findings* will never become a 140-character Twitter feed. That said, we'll keep evolving the publication to suit a world and a readership that's anything but static. Yet our goal will remain what it's always been: to enrich and engage you.

Oh, one other thing hasn't changed. Twenty-five years later, Shari Hawkins is still writing and editing *Findings*.

For this special edition, Shari decided to follow up with a few of our favorite folks from issues past. We hope you enjoy catching up with them as much we did. Now please keep reading and help us celebrate this *Findings* anniversary.

Stephen M. Puscott



They Might Be GIANTS

Below, some of the most photographed scientists in the history of *Findings*. Each researcher's height is scaled according to the number of times his or her image has appeared in the magazine (not including this issue).



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Since our first issue, roughly a quarter-million of these whiskered critters have helped OMRF scientists solve research riddles.





JORDAN
TANG

Thank You, Dr. Tang

As you might have noticed from the graphic on the previous page, there's no one who's appeared more often in the pages of *Findings* than Dr. Jordan Tang. So how could our 25th anniversary issue be complete without a visit from Dr. Tang?

But when we contacted him for this issue, he demurred with characteristic modesty.

"Thank you for wanting to salute my work, but it should now be someone else's turn," he said. "Your magazine should communicate the current exciting research going on at OMRF."

As usual, Tang makes a great point. OMRF's labs are full of a new generation of researchers conducting experiments that would have been inconceivable even a decade ago. They can sequence an entire human genome in a day or two. And they're learning how to quickly and efficiently decode and edit that genome, opening the doors to novel experiments and, they hope, treatments that until recently seemed more fiction than science.

Still, that being said, the foundation wouldn't be where it is today without Tang. And we hope he won't mind if we devote just a little more ink to him and his illustrious career.

Tang left his native Taiwan to come to Oklahoma in 1955, where he enrolled at Oklahoma State University. Two years later—and only seven years after OMRF had opened its doors—he joined the foundation as a laboratory technician.

For the next half-century-plus, Tang would become synonymous with OMRF, and the trajectory of his career paralleled the growth of the foundation. He first put himself and OMRF onto the research map by discovering a new protein in the stomach. That finding led to unraveling the structure of stomach acids, work that would create a test to detect stomach cancer. After several years seeking out ways to control blood pressure, he moved to HIV, where he laid the scientific groundwork for inhibitors that stopped the AIDS virus from replicating. These inhibitors became key ingredients in potent HIV-fighting therapeutics that have added years to the lives of people suffering from the devastating disease.

Still, Tang saved his best for last, devoting the last dozen years of his career to Alzheimer's disease. There, he made a series of breakthrough discoveries that led to an experimental drug for the deadly, memory-robbing illness. Although that treatment ultimately stalled in clinical trials, the work Tang and his team did on the disease provided researchers and pharmaceutical companies with invaluable

insights that helped move the field forward. "If all that we have learned about Alzheimer's is correct, there will be a drug," says Tang. "But I can't tell you when."

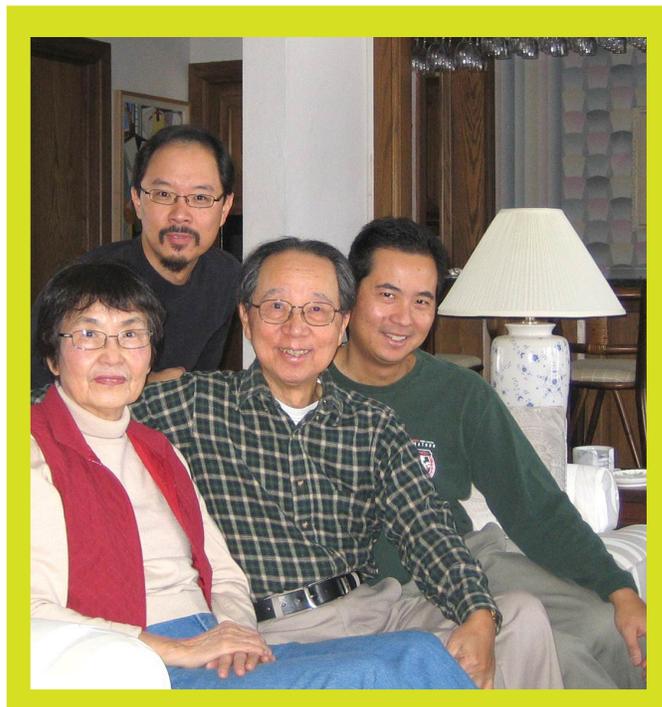
In 2013, Tang—the first and only OMRF scientist to be inducted into the Oklahoma Hall of Fame—retired. Sort of. Although he spends most of his time with his wife, Kuen, he still comes into his lab once or twice a week. He sees his sons frequently. He enjoys his peace and quiet and stays out of the public eye.

Still, the public isn't ready to let go of Jordan Tang just yet. This year, the Oklahoma Heritage Association published "Jordan Tang: Think...Create...Discover," a children's book about his life. And in November, the Oklahoma Alzheimer's Association honored him with its Lifetime Achievement Award at a gala dinner at the Skirvin Hotel in downtown Oklahoma City.

"I have often told people that a major difference between OMRF and other medical research institutions around the country is the extraordinary interest of the Oklahoma public in our research," says Tang. "They will tell you how glad they are that you're here and how much they appreciate what you're doing."

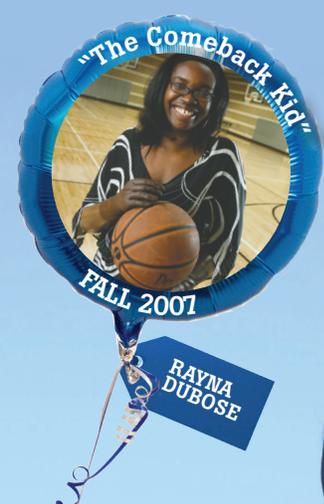
Thank you, Dr. Tang.

- Shari Hawkins and Adam Cohen



COURTESY OKLAHOMA HALL OF FAME

Dr. Jordan Tang at home with his wife, Kuen, and sons, Albert and Joseph



G ame

When a life-threatening infection took this basketball star's arms and legs, she had every reason to quit on life. Instead, she did the opposite.

Only a month after she'd finished her freshman season as a member of Virginia Tech University's women's basketball team, Rayna DuBose lay in a coma. Struck first by bacterial meningitis and then by the blood infection sepsis, her organs were shutting down. Plus, gangrene had set in, turning her extremities completely black.

When all else failed, doctors ordered a new medication called Xigris. Born at OMRF from the work of Drs. Charles Esmon and Fletcher Taylor, Xigris saved DuBose's life. But it couldn't save her limbs.

The prolonged loss of circulation to her extremities had caused the flesh in DuBose's hands and feet to die. "Her tissues," says Dr. Adam Katz, one of her physicians, "had literally mummified." In the surgery that soon followed, doctors amputated all four of her limbs.

Marcus Lewis, DuBose's high school basketball coach, visited her in the hospital. "After what happened to Rayna, she had every excuse to throw in the towel," he says. "But she refused to accept that."

She learned how to use prosthetic arms and hands that allow her to pinch, grip and release objects. Intensive physical therapy taught her to walk on prosthetic legs. She re-taught herself to drive and returned to Virginia Tech, where—resisting her parents' advice to live in a handicap-accessible room—she moved into an off-campus apartment with a pair of teammates.

Four years later, she graduated from Virginia Tech and returned to her childhood home outside of Baltimore, Md. She found a house near her parents but spent most of her days traveling around the country as a motivational speaker. Eventually, she cut her travel schedule so she could join Lewis' staff as an assistant basketball coach and take on work as a substitute teacher. This past year, she added duties as an assistant high school football coach.

Along the way, says Lewis, DuBose has become a role model for her teen charges. "She works out in the weight

Rayna DuBose serves as an assistant coach for the Marriotts Ridge (Maryland) High School football team.



room just like all my other coaches. She does the drill work just like all the others. That rubs off on the players. They see that. It makes them better people. She's an inspiration, and I will always have a place for her on my coaching staff."

This summer, with no teaching or coaching duties, DuBose took to running 10 miles a day. Then she'd head out to a court to play a few hours of pickup basketball with local teens.

One day, as she ran down the court on her prosthetic blades, a kid screamed out, "Guard her!"

"Why?" yelled back another. "She ain't got no arms!"

DuBose laughs as she recalls the scene. "They'd never seen anything like me!"

That positive attitude, says Lewis, is what makes DuBose so special. "When people see her the first time, it turns heads. But Rayna's got her life in the correct perspective.

She's turned a very bad situation into a positive one. Not everyone could handle it the way she has."

Even if she could, DuBose says she wouldn't change a single chapter of her story. "Looking back, I love everything that happened to me then. It taught me a lot about myself."

Besides coaching and teaching, DuBose still maintains a busy schedule as a motivational speaker and also spends time promoting the use of vaccines to prevent bacterial meningitis. Plus, she's working on a documentary about her life. It starts with her first day in ballet class as a little girl and ends where she is now, showing student athletes that happy endings exist if they're willing to work hard enough to find them. She hopes ESPN will one day air the story as part of the network's "30 For 30" series.

She understands that ESPN is a long shot. But if anybody knows how to overcome tough odds, it's DuBose.

- Shari Hawkins





No Finish Line



At each race he runs, Dan Brenden ends with a flare: He scoops up his girlfriend, Huguette White, and carries her across the finish line.

That scene alone would be quite memorable to most who witnessed it. (Think Richard Gere and Debra Winger in the final moments of *An Officer and a Gentleman*.) But there are two factors that make it even more so.

First, the races Brenden runs are not mere 5-kilometer affairs. Or even marathons. You see, Brenden is an ultramarathoner. That means that by the time he's done, he may have covered 100 miles or more. And the race courses are not usually of the paved variety; Brenden and White travel the world so that he can trek for up to a week across the sand dunes of the Sahara Desert or through the rainforests of Brazil.

Plus, White is pretty unforgettable herself. Some of that comes from what she possesses: an ever-present smile and a cheerleader's seemingly endless supply of energy. But a big part of what makes her memorable is what she doesn't possess—a left leg.



Huguette White at OMRF's research hospital in 1954.

In 1954, White's doctor diagnosed the ache above her left knee as Ewing's sarcoma, a rare and deadly cancer of the bone. She traveled from her native Lebanon to OMRF's research hospital, which was internationally recognized for its work on childhood cancers. Surgeons determined that amputation was the only way to save her life.

With White's mother translating, Hugh Payne, OMRF's general manager, delivered the news. White broke down sobbing. When Payne explained that her leg would be used for research to try to save others just like her, the teen dried her eyes. "If it's going to help people, okay."

After the surgery, White spent the next three months in OMRF's research hospital, recuperating and undergoing therapy. OMRF's doctors and nurses assisted her as she adjusted to the challenges of living with just one leg, and they also helped teach her English, which she speaks fluently today.

"You'd think that I would have been traumatized by it all, but it's just the opposite," says White. "It's a beautiful memory for me, and I am so grateful to everyone at OMRF. It completely changed my attitude and made me a better person. Even my loss from cancer didn't compare to what I gained from my time at OMRF."

White is not alone in finding a silver lining in her fight against disease, says OMRF President Stephen Prescott. "It's surprising, but a bout with cancer can be a positive experience. Regardless of how serious the case or how difficult the treatment, people can remember a battle with cancer as a special time. Often, it shapes who they become later in life."

For White, this meant focusing on the good things—a move to Oklahoma, marriage and the birth of her daughter, Kathy. She kept her outlook positive, even when the cancer returned and forced a series of debilitating treatments. Even when her husband died in an automobile accident, leaving her to struggle as a young, single mother.

"Mom refuses to remember the bad things," says Kathy Joseph. "It's her survival technique. And because of it, she affects every person she meets. Mom says, 'I love you,' to everybody, and she's completely sincere ... It's that

unselfish love of hers that keeps her going and makes her so incredibly alive."

Alone in a foreign country with a young daughter, White scraped together funds to pay the bills. She raised Kathy. She became a grandmother.

When she met Brenden, she even took up running herself, covering one- and two-mile courses in the mountains near her Phoenix home. But physical ailments continue to plague her.

Her lungs remain vulnerable to pneumonia and other ailments, due to the aggressive treatments doctors used years ago. Diabetes and heart issues are constant concerns, and she occasionally suffers from shingles. In the past year, she's had surgeries for kidney stones, a torn meniscus in her knee and, most recently, a partial knee replacement.

Now 76, she's kept cancer at bay for more than six decades. When one of her surgeons recently learned that she'd suffered from Ewing's sarcoma, he was amazed. "He said I was 'history standing there,'" recalls White. "I was the oldest survivor he'd ever seen."

The threat of recurrence will always lurk, and her physicians are currently monitoring a nodule that has appeared on her lungs. Yet White refuses to let the illness chart the course of her life.

Brenden is planning to run across the U.S., and White will accompany him. In each town, as she always does when he runs, she'll act as his support crew, offering water, fluids and her signature cheer: "Go get 'em, Dan! You can do it!"

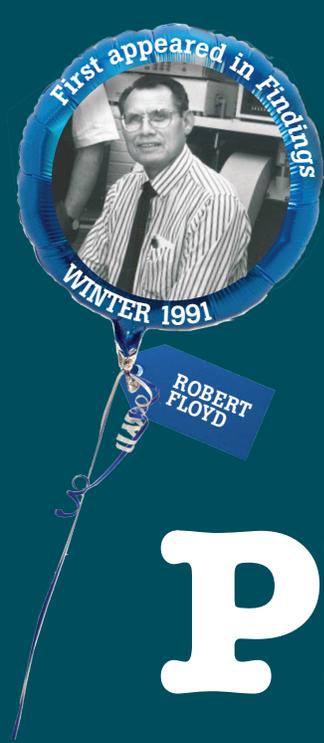
Although she can no longer run herself, White loves watching Brenden's races. "It's wonderful to see that strength, both physical and mental. The body is so strong. It's amazing what people can accomplish."

Of course, White isn't talking about herself. But she might as well be. The race of life has been a long, hard one. But there's no quit in her. "No matter how bad it seems," says Kathy, "Mom never, ever gives up."

- Shari Hawkins



... and today with her family



Play It Again, Bob

By Adam Cohen

How one OMRF scientist's refusal to give up on a failed stroke drug has yielded new hope for treating brain cancer and hearing loss



PHOTO: BRETT DEERING

Not much can surprise Dr. Robert Floyd anymore. At the age of 75, the native Kentuckian has, he says, “pretty much seen it all.” But when asked about an article that appeared in the inaugural issue of *Findings*, he shakes his head slowly. Then he breaks into a grin. “No, I never would have imagined it—that 25 years later, we’d still be working with these same compounds.”

You see, the very first story on the very first page of the very first edition of this magazine told about an exciting discovery Floyd had made in his laboratory at OMRF. He had found a family of compounds that appeared to be effective in preventing some of the neurological damage caused by strokes, even administered after the stroke had already occurred.

That major finding would lead to 15 years of development and testing of an experimental drug to treat people who’d suffered strokes. After giving the drug to nearly 5,000 patients, the company that had sponsored those trials abandoned them, concluding that the drug showed no meaningful benefits.

Usually, that’s where this story would end. But Floyd is not your typical researcher. “Where others saw failure,” he says, “I still saw opportunity.”

He believed the compounds still held promise.

“These drugs are powerful, and they will work in many different things,” he says. “We just needed to figure out what those diseases were.”

Another decade’s worth of work now seems to have proven him right. Today, the compounds are undergoing a pair of clinical trials: one to treat hearing loss, the other in patients suffering from a deadly form of brain cancer. While these studies are still ongoing, each shows promise for meeting a crucial medical need.

A happy ending is by no means guaranteed. But the fact that it’s even possible is a tribute not only to Floyd but also to a small band of people who shared his ability to recognize something that no one else could—hope.

More than 25 years ago, Floyd made what would prove to be the most exciting finding of his scientific career. He found that a compound he’d been using to trap highly reactive oxygen molecules prevented brain injury in animals that had suffered certain types of strokes. What’s more, the compound worked when given up to an hour after a stroke.

Floyd immediately saw that this discovery held enormous potential for treating stroke in humans. “We had a tiger by the tail,” says Floyd. “The question was: Could we do it justice? Could we turn this basic observation into a drug that works?”

The answer, unfortunately, would prove to be “almost.”

After a dozen years of pre-clinical research and development, a compound based on Floyd’s discovery entered human clinical trials. It successfully completed the first two phases of those trials, showing itself to be safe and, apparently, effective. In a larger phase III trial involving 1,700 patients, the drug showed efficacy in treating ischemic strokes, where a clot blocks the blood supply to the brain. But before the U.S. Food and Drug Administration would approve the drug for widespread use, the agency wanted more testing conducted to ensure that the drug posed no risk to patients who’d suffered hemorrhagic strokes caused by the rupture of weakened blood vessels.

That additional testing involved 3,000 stroke patients on five different continents. The trials found that the drug posed no harm to people who’d suffered either type of stroke. But while the earlier, smaller trials had showed that



Dr. Robert Floyd



the drug prevented the brain injury that triggers the loss of speech, mobility and vision that follows an ischemic stroke, the larger trial demonstrated no such beneficial effect. As a result, the company that had spent roughly \$400 million to develop and test the drug decided to abandon it.

Floyd was devastated.

“We’d spent many, many years working on this project,” he says. “You put your whole life into doing something. And then one day, it’s over.”

In the wake of the failed trial, Floyd was “terribly depressed.” Eventually, he convinced himself to take another look at the reams of experimental data he’d generated over time. Could something, he wondered, be salvaged from more than 10 years of research?

In the notebooks, he reviewed results of previous experiments. His earlier work showed the drug might hold potential to treat some forms of cancer. But when he tried variations of the drug to treat mice with liver cancer, the results were mixed. The compounds showed some promise, yet the results weren’t enough to convince him to move forward with further work.

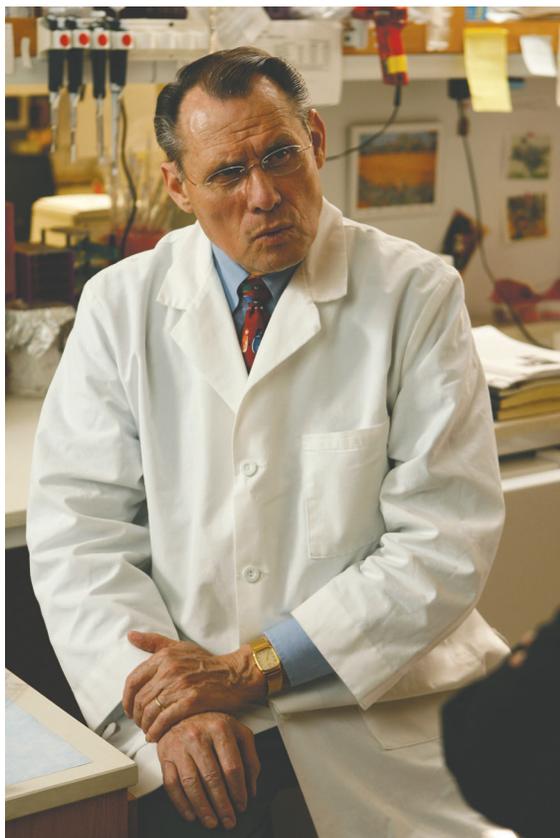
As Floyd pondered his next step, he learned Dr. Rheel Towner, another OMRF researcher, had developed an experimental model to study tumor growth in a fatal brain cancer. That cancer, glioblastoma, strikes approximately 23,000 Americans each year. The average survival time from diagnosis is 16 months. Without new treatments, says Towner, “glioblastoma is essentially a death sentence.”

Towner, who was already studying the use of the compound in brain cancers, agreed to try the experimental drug in his model. When he administered a dose of the drug—which he and Floyd dubbed OKN-007—to a rat with glioblastoma, 90 percent of the tumor shrank. “We were amazed,” Towner says. “We tried it in several different rodent glioblastoma models, and, in every case, the tumors decreased and survival increased.”

In experiment after experiment, the drug attacked the tumors, inflicting no perceptible damage to surrounding tissues or negative side effects to the rodents. Towner searched out more and more aggressive models of the cancer, and each time the treatment proved effective. Even months after therapy was stopped, the rodents showed no evidence of regrowth or recurrence. The tumors had disappeared completely.

Drug development is a notoriously risky and expensive business. Success rates are low, and, even when an experimental drug proves effective, a relatively small research institute like OMRF lacks the resources to take a discovery all the way from the laboratory to the clinic.

Nevertheless, the earlier failed clinical trials had some silver linings. The company that ran the studies had granted OMRF unfettered access to the results of those trials. The data, which showed no significant side effects when given to almost 5,000 patients, could form the basis of an application to the FDA, and that application could be prepared at a



PHOTOS: STEVE SISNEY

fraction of the cost normally required to put together such a proposal. What's more, the company gave OMRF the drugs that still remained from the stroke trial. If the FDA approved the trial, OMRF could use those drugs to treat cancer patients.

So OMRF made a decision: For the first time in its history, the foundation would sponsor its own clinical trial.

OMRF raised \$750,000, with a major portion coming from i2E, a non-profit focused on stimulating innovation in Oklahoma. These funds would be enough to pay for a small early-stage clinical trial. Foundation staff then prepared the Investigational New Drug application for the FDA.

The agency maintains a 30-day window to review applications like OMRF's. Regulators use the time to comb through the documents (in this case, more than 7,000 pages worth) and request additional information, if needed. If an applicant hears nothing from the agency, it may proceed with trials.

With only minor modifications to the application, OMRF's 30 days came and went.

When Dr. James Battiste diagnoses a patient with glioblastoma, the neuro-oncologist doesn't mince words. "I tell them that this will be the most trying time of their lives," says Battiste, an assistant professor of neurology at the University of Oklahoma Health Sciences Center and a physician and surgeon at OU's Charles and Peggy Stephenson Cancer Center.

The typical course of treatment for this type of brain tumor involves surgery, a follow-up six-week course of radiation and chemotherapy and, in many, a second regimen of chemotherapy that can last as long as an additional year. The effects of the illness and treatments are often profound.

"From the tumor, patients can experience memory loss, seizures, difficulty thinking, changes in personality, hallucination, vision loss, weakness and stroke-like symptoms," says Battiste. Meanwhile, the radiation and chemotherapy can cause fatigue, nausea, hair loss and insomnia. "It's not just the patient who goes through this," he says, "it's the whole family. Because many patients lose faculties and their ability to care for themselves." It's that loss of self, he says, that makes glioblastomas particularly overwhelming among cancers. "Not only can they kill you, but in the process they rob you of who you are."

Even with surgery, radiation and chemotherapy, the five-year survival rate for glioblastoma patients is less than 10 percent. So Battiste is constantly searching for new therapies. When he joined OU from the University of Texas Southwestern Medical Center in 2013, he began enrolling patients in the clinical trial for OKN-007 at Stephenson.

The FDA had limited the initial clinical trial to assessing the safety of the drug. The agency had also specified that physicians should administer the treatment intravenously and only to patients who had failed all other forms of therapy. "That's tough, because we're treating very aggressive tumors," says Battiste. But, on the other hand, "if you do see a benefit, you're talking about something that has resisted a lot of other treatments."

Still in the early stages of clinical trials, OKN-007 could help extend the lives of cancer patients faced with a grim diagnosis.

Over the course of two years, he's enrolled six patients in the trial. Although Battiste is cautious about interpreting the data gathered from such a small sample, particularly one involving an experimental treatment, he says he's been "encouraged" by the results. "From the pre-clinical work and the things we've seen with patients, I think it has a chance," he says. He believes there are ways to modify the treatment regimen that could render the drug more effective—approaches like altering the means of administering the drug as well as the dosage levels and frequency. "I think we can make it even better. And if we do, it will have a great chance."

Battiste is not alone in this belief. With the funding for the early-stage trial nearly exhausted, OMRF once again sought out a pharmaceutical partner to help move OKN-007 forward. And though, as of press time, no deal had been signed, a suitor has emerged. OMRF Vice President of Technology Ventures Manu Nair, who's led the negotiations, is optimistic about the drug's future.

"The preliminary results look promising," he says. "If we're successful in building a collaboration with industry, we can refine our treatment approach and bring the drug to more patients." That, he says, "is a very exciting prospect."

Hope, it's said, can grow in unexpected corners. And when it does, it sometimes sprouts in more than one place.

As OKN-007 made its way through preclinical and clinical trials in glioblastoma patients, Floyd and another scientific collaborator began examining whether the compound might also have some effect in treating hearing loss. The answer, it seems, may be yes.

Floyd had first looked at using a similar compound to treat hearing loss in the 1990s. That work had shown some slight effects, but the results weren't dramatic enough to warrant further study. So he dropped the project.

A decade or so later, Dr. Richard Kopke came to Floyd with an idea. During his 26 years as a physician in the U.S. Army, Kopke had treated countless soldiers who'd suffered hearing loss as a result of blasts from bombs or improvised explosive devices or by prolonged noise exposure caused by sources like jet engines and artillery fire. Following his service, Kopke had retired to join the staff of the Hough Ear Institute in Oklahoma City, where one of his research interests was finding ways to treat and prevent these types of hearing loss.

Kopke had been working with a compound that showed marginal protection in these situations, but he thought he might be able to do better if he combined that treatment with Floyd's compounds. The OMRF scientist was intrigued, so he provided Kopke with some OKN-007. When Kopke administered the two drugs to rodents before exposing them to noise challenges, he found the

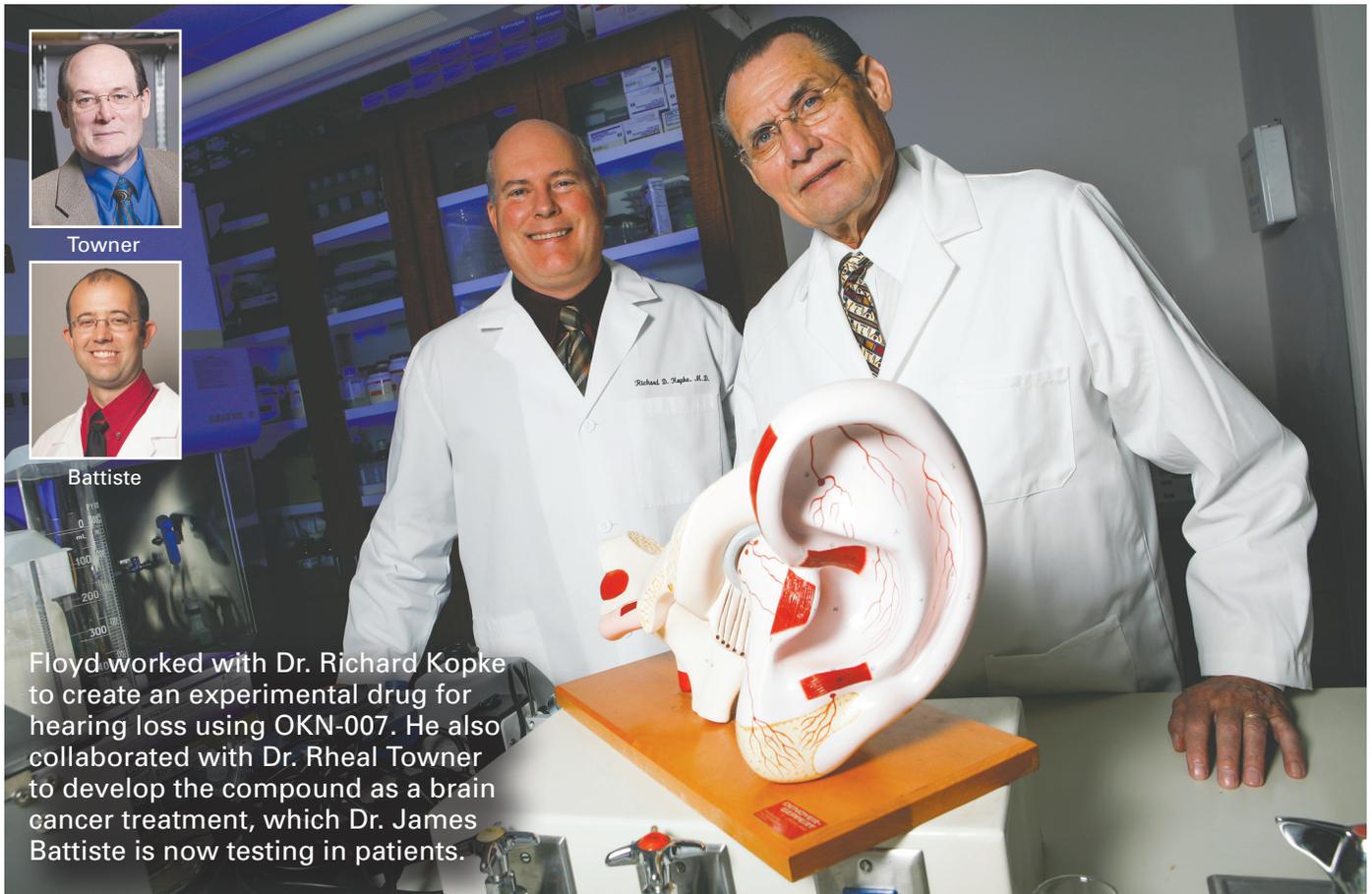


PHOTO: JON CLANTON

Floyd worked with Dr. Richard Kopke to create an experimental drug for hearing loss using OKN-007. He also collaborated with Dr. Rheel Towner to develop the compound as a brain cancer treatment, which Dr. James Battiste is now testing in patients.

combination reduced hearing loss. Even when given after the noise exposure, the drugs offered some protection to the tiny hairs in the inner ear that are crucial to hearing.

Based on these preclinical results, OMRF and Hough formed a spin-off company, Otologic Pharmaceuticals, to develop and test the drug combination. With support from local investors such as i2E and Accele BioPharma, an Oklahoma City biotechnology incubator, the company is now testing the drug combination for safety in humans. If those trials prove successful, the company plans to expand testing to study the drug's effectiveness at preventing hearing loss in people.

The new treatment could answer a critical unmet medical need, says Kopke. "We live in a very loud world. Whether it's soldiers in a warzone or children playing video games with the volume up too high, sound can damage us in very real, very limiting ways."

In the longer term, Floyd believes the compounds might also be effective at preventing hearing loss that occurs as people grow older. "If we're right, this therapy could help not just soldiers dealing with combat-related hearing loss, but also civilians experiencing age-related hearing loss."

Floyd no longer runs a lab at OMRF. But he still comes to the office regularly, where he keeps tabs on the progress of OKN-007, both in its clinical trials and in ongoing research projects that Towner and Kopke are

conducting. On occasion, he'll offer some consultation on those projects.

As his research career has wound down, he's found a passion that, like his work on OKN-007, ties back to an earlier part of his life. As a child in Kentucky, he'd gather each night with his family around an old organ and sing. With science keeping him so busy, he never pursued his interest in music. But several years ago, he finally took the leap. Today, he sings each Sunday in the choir at All Souls Episcopal Church.

"Singing is so different from science," he says. "In choir, you don't want to stand out. In science, you do."

After more than 25 years of working with OKN-007 and its sister compounds, he is ready for them to stand out, too. But does he ever wonder what it might have been like if he'd chosen research projects that didn't have quite so much hope attached to them? Because, when a promising new drug for a life-threatening condition fails, there's a real human price. People get sicker and die. So isn't working in this field—where most experimental treatments end up falling short—just a recipe for heartbreak and frustration?

Floyd thinks about the question for a moment. "When I went down this road, I knew it would change my life. But if I didn't, there would be things that might really help people that would be lost."

That chance to impact human lives made the decision easy. "You can't be afraid to fail." Or, he says, "to hope." ■

25 YEARS OF CHRONICLING SCIENCE AT OMRF

WE'VE GOT IT COVERED

As you may have noticed, we love pretty much anything nerdy. We used these vintage *Star Trek* figures (purchased almost nine years ago and still adorning our creative director's office) for a photo shoot on a story about predicting disease.

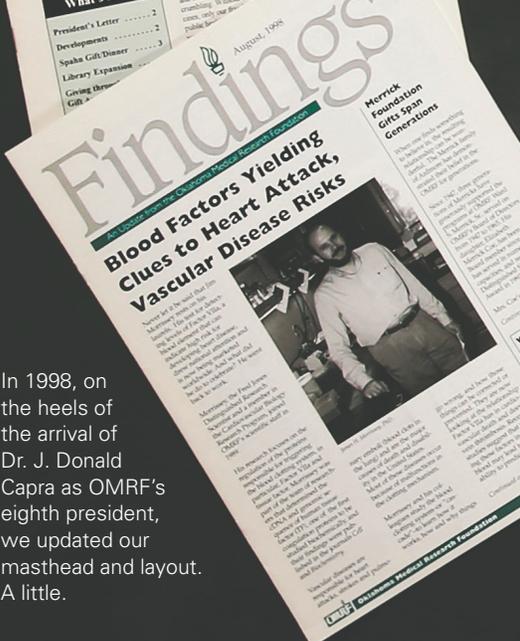
2007



The inaugural issue of *Findings* kicked off with a letter from Dr. William Thurman, OMRF's president at the time. Thurman explained to readers that the aim of the four-page black-and-white newsletter was "to inform you about OMRF and its activities, as well as the human impact of our research."

Can we have a redo on this cover? Not that we don't love bacterial mutations...

1991



2000



This image, created by illustrator Cameron Eagle, accompanied our 2003 feature "Women in Research." With a doff of the visual cap to pop artist Roy Lichtenstein, the layout had a decidedly retro feel. And it represented the beginning of a beautiful friendship between *Findings* and cartoons.

Our real "Toto, I've a feeling we're not in Kansas anymore" moment came with the new millennium, when we ditched the black-and-white-and-green palette to become a full-color magazine with our 28th issue.

In 1998, on the heels of the arrival of Dr. J. Donald Capra as OMRF's eighth president, we updated our masthead and layout. A little.



Our profiles of people impacted by the research at OMRF included this 2013 story about Alea Hubbard, who receives care for her multiple sclerosis in our MS Center of Excellence.



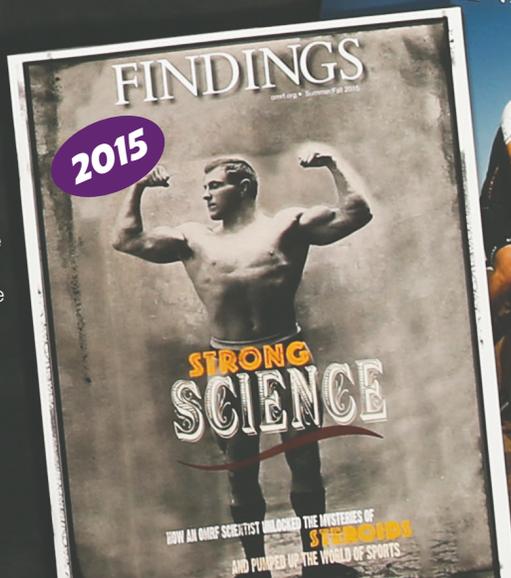
See that instrument in Dr. Jordan Tang's right hand? It's a pipette, and scientists use it every day to transfer or measure out small amounts of liquid. When photographed using a colored lighting gel (we chose blue here), it's one of our favorite props to help make OMRF's labs look a little more *CSI*-like.

Bruce Eagle (Cameron's cousin) drew this illustration as a way of saluting the OMRF researchers who work on rare illnesses. For every cover he drew, Eagle would hide a little "OMRF" somewhere in the image. Can you find it in this one?



To capture a day in the lives of husband-and-wife researchers Drs. Tim and Courtney Griffin, we created this game-board graphic. We're still waiting for Hasbro to call us with an offer to produce the Griffin Game of Life, which allowed players to "advance careers one space" or "pick another research topic."

Today, each full-color issue of the magazine has 24 pages (counting the cover) and is mailed to nearly 40,000 supporters of OMRF. But we've done our best to stay true to the vision Dr. Thurman laid out a quarter-century ago: telling you about our scientists, their science and the people whose lives it's changed.



Plowing



John, Charla and Snoopy Enns on their 640-acre farm south of Enid, Okla.

PHOTO: BRETT DEERING

Ahead

A TRACTOR ACCIDENT SEVERELY DAMAGED JOHN ENNS' SPINE. WE FIRST MET HIM AFTER HIS INJURIES HAD HEALED AND HE WAS HELPING TO ESTABLISH THE OKLAHOMA CENTER FOR ADULT STEM CELL RESEARCH AT OMRF. WHEN WE CAUGHT UP WITH HIM AGAIN THIS PAST FALL, WE FOUND A MAN WHO REFUSES TO LET HIS INJURIES SLOW HIM DOWN.

It's a sunny mid-October afternoon, and a lush, green carpet of sprouting winter wheat covers the fields around John Enns' farm near Waukomis, Okla. One more day, he says, and his crop will be in the ground. If all goes well, these acres will yield a bumper crop of wheat next June.

Enns zips across the yard, faster than some people on two legs, to slide open the large metal shed doors to prepare for our photo shoot. His dog Snoopy trails behind, accustomed to the sound and motion of Enns' "ag scooter."

The custom-made, motorized chair Enns drives is part wheelchair, part tractor. Designed and built by a disabled farmer, the scooter comes equipped with attachments, like a blade that will clear up to two feet of snow, to help with tasks around his property. The scooter is an essential part of Enns' role as a farmer, because on the farm, the work doesn't wait.

When a farming accident broke Enns' back in three different places, doctors told him he would never take another step. But after surgeries and years of rehabilitation, Enns got to the point where he could walk nearly 700 feet—until a rare accumulation of fluid around his spinal column set him back. "My hand kept going numb, and when I sneezed, it felt like my chest was going to blow apart," he says. An MRI revealed a buildup of fluid on his spinal cord. "The doctor drilled a hole in my spinal cord to release the fluid. He said it was like sewing me up 'under a waterfall.'"

While the procedure corrected the fluid issue, Enns' recovery has been grueling. "Several of the bones in my back are fused, and this surgery was so tricky, it's considered another spinal-cord injury," he says. Two years later, he's still not fully recovered. "I'm pretty strong, but I've just now gotten to the point where every evening I'm trying to practice standing and doing some walking with a walker."

Two years after his accident, Enns ran for and won a seat in the Oklahoma House of Representatives. There, he's had a chance to champion a pair of causes dear to him: agriculture and empowering the disabled. At Oklahoma State University, he even helped establish an "agribility" program to assist farmers with disabilities.

That program has rendered assistance to farmers throughout the state, including Enns himself. "The agribility folks helped make the doors on my hay shed easier to open, so now I can do it from my scooter," he says. "Simple things like that can be difficult or impossible for a person in a chair. But until someone pays attention to those needs, farmers struggle."

At the Capitol, Enns also played a key role in establishing the Oklahoma Center for Adult Stem Cell Research, which is housed at OMRF. Working with the Oklahoma Tobacco Settlement Endowment Trust, he helped create a state center devoted to research using the undifferentiated cells that exist in all of us and that the body uses to replenish dying cells and regenerate damaged tissues.

While so-called embryonic stem cells have generated considerable controversy, adult stem cells have not. That's because work with adult stem cells doesn't involve the destruction of any embryos. But that distinction, says Enns, was lost on many.

"We fought hard to get OCASCR off the ground, just because of the words 'stem cell.' Every time I said it to someone, I had to clarify that we meant adult stem cells. It surprised me how many misconceptions there were about stem cells and how little people knew about their potential."

Early-stage research had shown the potential for these cells to generate new therapies for a host of conditions ranging from Parkinson's disease to blindness. Work had also shown exciting possibilities for the treatment of spinal-cord injuries like the one Enns suffered.

Since its formation in 2010, OCASCR has awarded almost 100 grants totaling more than \$8 million to researchers at institutions across the state. Those funds have already helped scientists make new findings in leukemia, colon cancer, lupus, diabetes and eye diseases. Enns hopes work in Oklahoma will also one day offer new ways to help those with spinal-cord injuries.

"Representative Enns and TSET really had tremendous vision," says Dr. Paul Kincade, who serves as both OCASCR's scientific director and vice president of research at OMRF. "Six years ago, there were only two researchers in Oklahoma doing adult stem cell research. Now we have more than 30."

Enns' legislative term is up next year. Will he run again? Probably, he says, but it's hard with so much to do at home. "The farm"—which has been in his family for more than a century—"is always my first commitment."

One by one, a small herd of cows gathers at the fence, snorting, tails flicking away flies. Enns takes a long look around as his wife, Charla, drops to the ground beside his scooter. She pats her husband's leg. It's the kind of small, affectionate gesture that speaks volumes about a couple.

"Trauma either pulls you closer or tears you apart," he says. "For us, it made us closer."

- Shari Hawkins

IT'S ALL RELATIVE

Our *Findings* creative team has become something of a family. But our real-life families have also been a part of the magazine over the years.



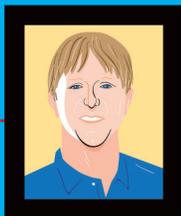
Bill (grandfather)



Sylvia (mom)



Laura (sister)



Mike (brother)



Will (nephew)



Mary (girlfriend)



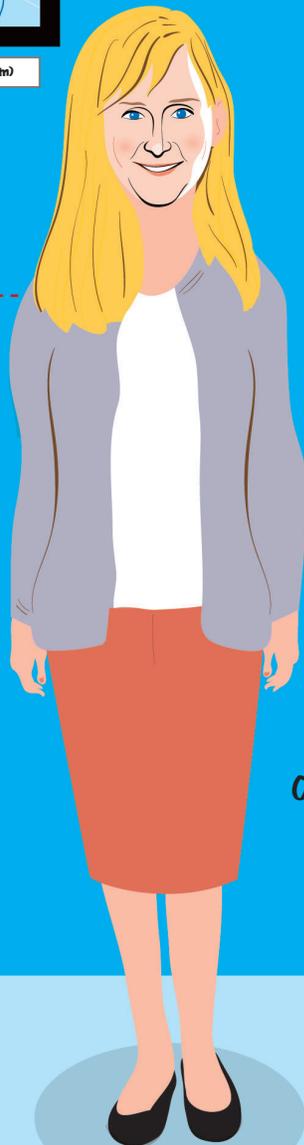
Jonathon (brother)



Alison (sister)



Mike (dad)



Jenny Lee
Creative Director



-  Photo appeared in *Findings*
-  Subject of article
-  Proofread the magazine
-  Wrote letter to the editor
-  Sent health question to Dr. P.
-  Drew illustration for the magazine



Regina (mom)



Audelle (mom)



Will (son)



Theo (son)



Ariel (daughter)



Adam Cohen
Editor-in-Chief



Shari Hawkins
Managing Editor

ILLUSTRATION: BRIAN TAYLOR



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THE LAST WORD (AND SOME PICTURES)

FROM OUR
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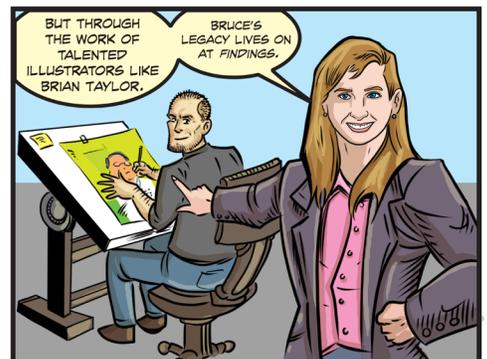
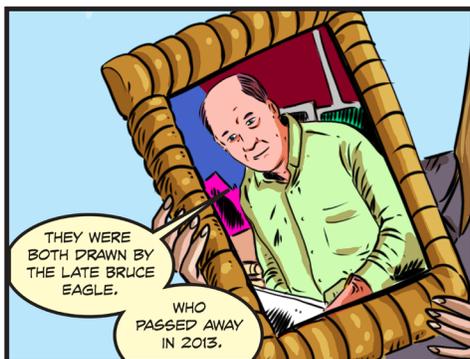
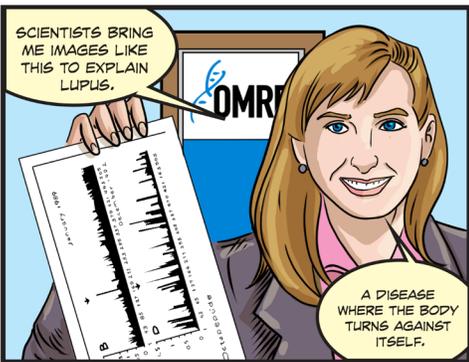
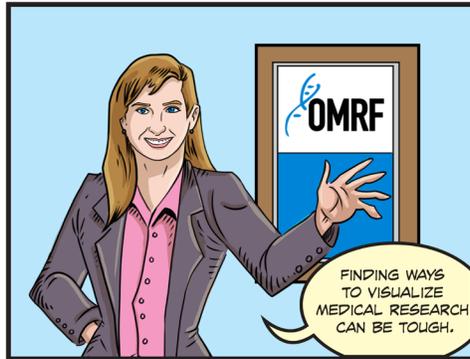


ILLUSTRATION: ERIC SCHOCK