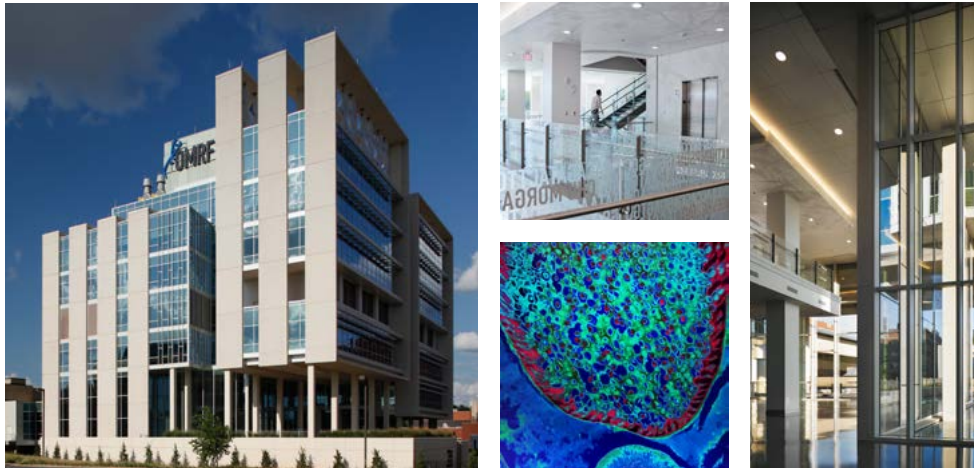


13

OKLAHOMA MEDICAL RESEARCH FOUNDATION  
2013 Annual Report

Questions





## The annual report.

It's a requisite exercise in the business world, from the smallest nonprofit to the largest corporation in the land. The close of a year brings with it the opportunity to capture a snapshot of the past 12 months. The numbers. The achievements. The people who made things happen.

As we discussed potential concepts and elements for OMRF's 2013 annual report, we toyed with plenty of options. Was '13 a year of bad luck—or good? A baker's dozen? Dictionary publisher Merriam-Webster Inc., named “science” its 2013 word of the year. Definitely up our alley, right? From selfies to sequestration, 2013 brought with it a jumble of topics and terms all vying for our attention.


While we considered our options, we asked questions. Lots of questions. In science, after all, every question generates more questions. Our list grew and grew.

And soon we realized that our concept was right under our noses: to answer some key questions that we—and maybe you—asked this year.

We pared down the list to a nice (un)even 13 and went in search of the answers.


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Interviews have been condensed and edited.  
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QUESTION ONE

If we know so much about the human body, why can't we keep people from getting sick?

“The more we learn about disease, the more we realize how much we still don't know.”

OMRF President Stephen Prescott



Steve's background as a physician gives him keen insight into the importance of research and its role in improving human health.

“Expectations soared when we launched the Human Genome Project in the 1990s. Diseases, we thought, would fall like dominoes.

Did mapping the genome reveal all the answers to our questions about disease? Hardly.

Still, we can't label that effort a failure. Many new therapies have come out of the genome project or are in the pipeline. It can take 16 or 17 years for a drug to go from the lab to the marketplace, so we aren't even close to seeing the final results.

Perhaps we were naïve or overly confident in our ability to find all the answers and create a disease-free world. Instead of conquering illnesses outright, we've learned that diseases, as well as the human body, are infinitely more complicated than we ever imagined.

Bacteria and viruses like influenza constantly mutate and change themselves to evade our efforts to stop them. We can guess what they'll do next, but they're too clever for us to get too far ahead of them.

But, in my professional career as a physician, deaths from heart attack and stroke have fallen about 60 percent, all from improvements in research, surgery and treatments. It didn't happen overnight, but it did happen, and millions of lives have been saved as a result.

Ten years ago, the idea of changing a blood cell to a muscle cell or using your own cells to reconstruct bone or repair your heart was pure science fiction. Today, regenerative medicine—transforming our own cells into stem cells to renew and restore our bodies—is one of the hottest topics in research.

Still, there's one factor that lies outside our control: the human element. Some people still smoke. We eat unhealthy foods and avoid exercise. Improvements in our behavior would certainly reduce the occurrence of some diseases, but curbing those behaviors lies beyond the reach of medical research.

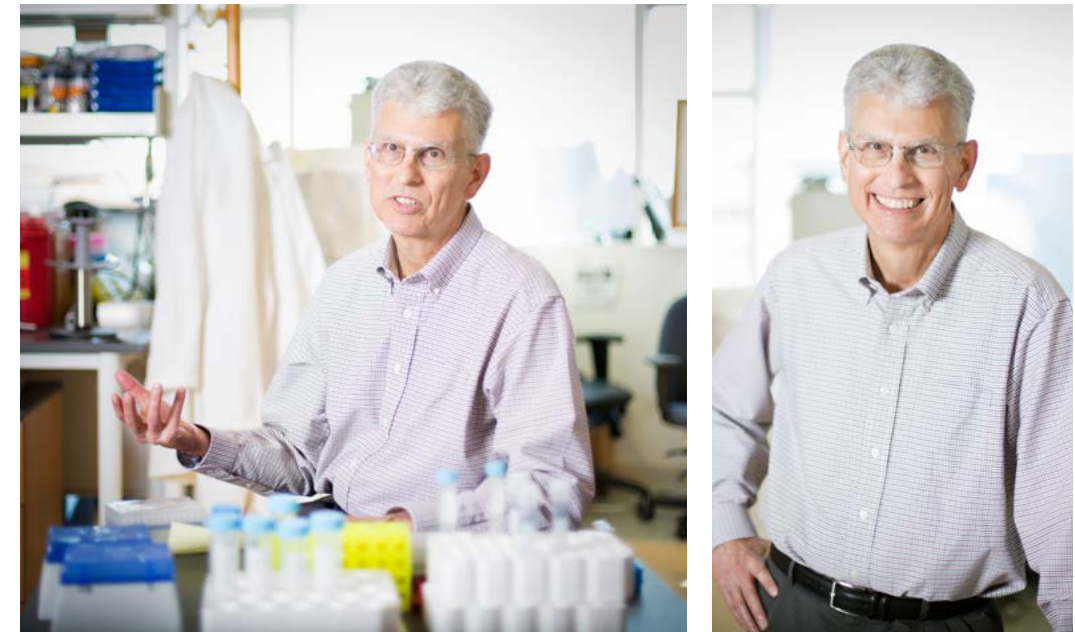
To deal with complex diseases, we'll need to pool our intellectual resources more effectively. The strength of the discovery process lies in its diversity. Research requires an ensemble cast, each player bringing his or her particular expertise to the table, to the lab, to the clinic.

As our knowledge base continues to grow, I'm optimistic that we're on track to keep making inroads against disease. Maybe not today or even tomorrow.

But soon.”

“Our entire society will suffer.”

Dr. Rodger McEver



Rod got his start at OMRF in 1965 as a Sir Alexander Fleming Scholar and now leads OMRF's Cardiovascular Biology Research Program.

## QUESTION TWO

What will happen if the government keeps cutting funding for research?

“If these funding cuts continue, some of the most highly educated and well-trained individuals in our country will be forced to leave the field. It will be a tremendous waste of human talent.

When I got my first grant 30 years ago, it wasn't this stressful. I spent a lot more time doing science and less time writing grants. Today, even strong investigators may not get funding. When that happens, labs shrink. Jobs disappear. We're going to lose a generation of remarkable people who've spent years preparing to foster knowledge.

Research improves the intellectual vibrancy of society and creates jobs. Medical research is the engine that will help us find answers to human disease. Without it, discoveries won't be made. Jobs won't be created. The intellectual strength of our society will decline. Healthcare will not improve. And they're all linked. We have an aging population, so we need more medical research, not less. Our economy is ailing, so we need more high-quality jobs, not fewer.

We've spent decades developing this wonderful medical research infrastructure that has led the world. That structure is shrinking and is about to start disintegrating.

Medical research is one of the most competitive programs in the entire federal government. We're doing something valuable with taxpayers' hard-earned money, but in this current environment, no matter how innovative, creative or productive you are, you'll end up a loser. Society will be the real loser.

Expanding the research budget, even modestly, will make our society more vigorous, provide more opportunities for our young people, foster economic development and improve human health. Cutting it has huge and long-lasting negative repercussions. Support for medical research should be a high priority.”

“Not from where we sit.”

Drs. Joan Merrill and Courtney Griffin

QUESTION THREE

# Is there a gender gap in research?



Joan treats lupus patients and conducts clinical trials for new medications for the disease, while Courtney studies blood vessel development and the genes involved in the process.

**COURTNEY:** My experience has been virtually gender-blind. Some of my biggest cheerleaders are and have been men.

**JOAN:** Biases exist in certain areas, but men face pressures as well.

**COURTNEY:** I've had friends in other professions who quit work for a few years to have children. Science moves quickly, so there's no easy on or off ramp for taking a break and raising a family. Some find they have to choose between having a family or a career.

**JOAN:** Early in my career, the National Institutes of Health offered special grants for women re-entering the workforce. I was upset. Here I was, working and raising a family all those years. I'd never left the workforce. And now I couldn't qualify to get that grant money?

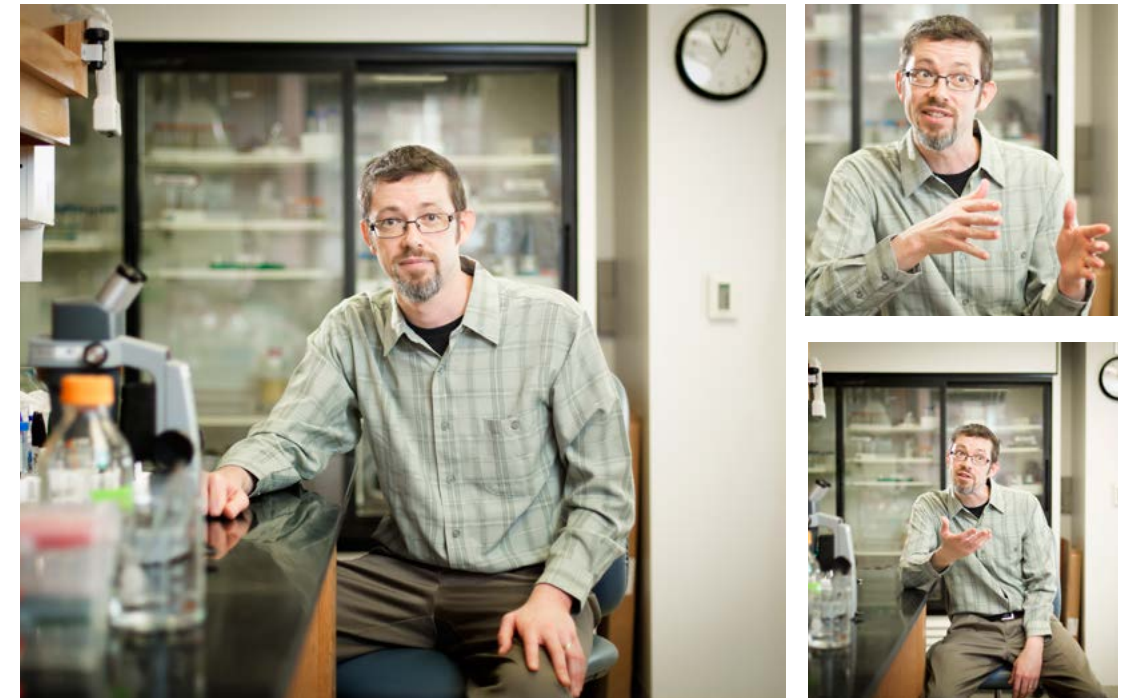
**COURTNEY:** Those two worlds—the lab and home—complement each other well for me. I can't imagine doing one without the other.

**JOAN:** I was 30 when I entered medical school, so age played a bigger role in my story than gender. When it's your passion, you follow it. You have to make choices.

**COURTNEY:** Personality is a much bigger factor than gender. I've been lucky to have excellent mentors who were truly good people, and that makes the difference. A lab is a very intimate place. Now that I'm a mentor myself, I'm very cognizant that I'm working with humans, complete people—not just men and women. You have to balance what's going on in their lives and respect that. It's a human equation, not a gender thing.”

“Absolutely not.”

Dr. Lorin Olson



In OMRF's Immunobiology and Cancer Research Program, Lorin studies adult stem cells and how they can be applied to the process of healing wounds.

QUESTION FOUR

# Are scientists playing with fire by manipulating stem cells?

“If you had diabetes and doctors told you they could give you new pancreatic cells and possibly cure your disease, would you tell them to stop? Imagine you had multiple sclerosis, where the cells around your muscle fibers degrade and interfere with the brain’s signals to the body. If scientists found a way to create new, healthy muscle cells that might lessen or end your MS symptoms, would you pull the plug on that research? Of course not.

Stem cells possess the ability to turn themselves into different types of cells. No longer the stuff of science fiction, they’ve opened a new research frontier, one of hope and promise. While it’s foolish to oversell their value, most scientists believe stem cells hold great potential for helping us tap into new ways to control disease, often using our own cells.

For decades, researchers have manipulated human cells of all kinds to learn more about how the body

works. Those studies have yielded new treatments for disease and added years to many lives. The notion of controlling the function of a cancer cell brings cheers all around. Likewise, people everywhere would embrace the possibility of improving their brain cells to reduce the devastating effects of Alzheimer’s disease or dementia.

Even if stem cell research doesn’t yield a treatment for a human disease, it’s still valuable to researchers to help us answer important questions like: How do our organs work? And why do we age? Is it because our stem cells stop maintaining our bodies like they’re supposed to?

If we don’t keep studying stem cells and following up on the questions they generate, we might never find the answers.”

QUESTION FIVE

# How is OMRF different from a hospital?

“Hospitals provide short-term acute care. OMRF focuses on the long game: to understand human health and disease.”

Dr. Judith James



Judith launched her scientific career in 1988 at OMRF, where she continues to study and treat patients with autoimmune diseases.

“OMRF once had a strong tradition of operating a hospital with a research focus. At the time, it was the only way we could give chemotherapy treatments or participate in national clinical trials. Many people in Oklahoma still equate OMRF with a hospital. But the critical care arena has changed dramatically since those early days. In fact, most current medical practices exist on an outpatient basis. Because we focus on chronic, not acute, diseases, we are best aligned as an outpatient facility. For the diseases we study, many times we can understand more about our patients’ needs from clinic visits. That frequent, face-to-face contact helps us learn a great deal about how our patients manage their disease and how it affects their daily lives. It also lets us learn a lot about the disease process and help patients manage their symptoms in a direct and targeted way.

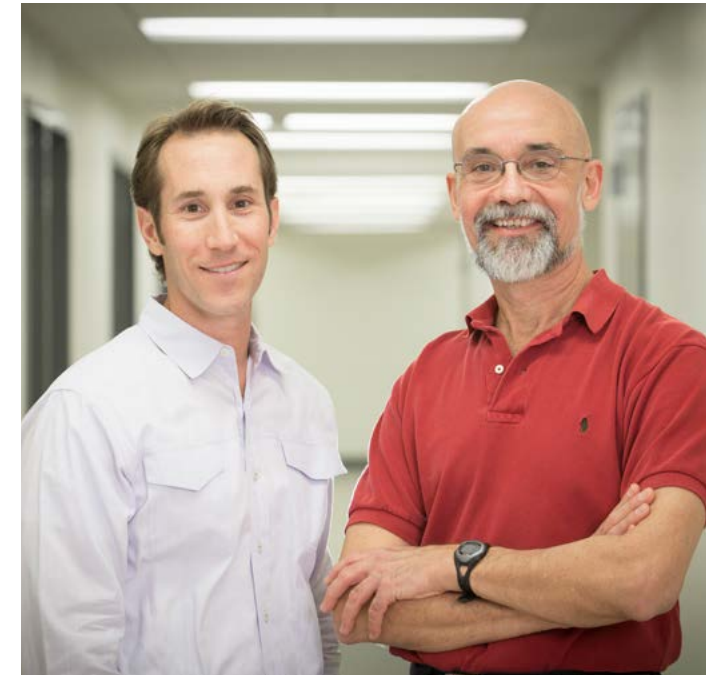
We have strategically decided that we can learn an immense amount about many diseases by focusing on one category: autoimmune diseases. These are conditions in which the body turns its disease-fighting arsenal on itself. Autoimmune diseases like lupus, Sjögren’s syndrome and multiple sclerosis tend to cluster together and share similarities but have unique differences. This allows us to apply different scientific approaches that might benefit more than just one condition.

We need to study drugs in patients who are healthy enough to take them. Our outpatient model is perfectly suited for working with a larger number of people and observing a wide variety of real-life disease presentations.

By focusing on our areas of expertise, we can help bring new and meaningful treatment options to those who need it most.”

“They do. But they’re usually more of a whisper than a shout.”

Drs. Scott Plafker and Gary Gorbsky



Scott’s research focuses on the role of oxidative stress in age-related macular degeneration. Gary studies cell division and how changes in that process can lead to the development of cancer.

## QUESTION SIX

# Do “Eureka!” moments really exist?

**GARY:** A true ‘Eureka!’ moment happens when you get a result and it’s immediately crystal clear where you’ve been wrong up to that point. It’s the instant you figure out something the entire field has missed. It’s very rare but very important.

**SCOTT:** Yeah, it’s when everything clicks into place. When your previous 10 or more results finally make sense. You see what you were missing. The ‘Eureka!’ part happens with the awareness that the answer was right in front of you the whole time, in plain sight. But until then, you weren’t thinking about it or interpreting it in the way that let you see the answer.

**GARY:** Few of those moments occur alone, though. Working with the people in the lab, bouncing ideas around, building on each other’s strengths. It’s really a social event.

**SCOTT:** True. It’s often about ongoing interpersonal interactions with outstanding colleagues. That’s the great thing about OMRF. It’s a really special environment.

**GARY:** Early in my career, I had what I considered a real breakthrough. But instead of running through the lab showing everyone, I just did more experiments. I had to prove that what I’d found was real.

**SCOTT:** Sometimes we can learn more from a negative result than we can from one we expected from the start. That’s a pivotal moment, albeit a quieter one.

**GARY:** Research is a never-ending process. But each step takes you to a new place of understanding. There’s always a bit of mystery that lingers.

**SCOTT:** Even a great idea can require a long time before it can be tested. It’s kind of like cooking. Say you decide to make cookies, but you have to create them from nothing. So you grow the wheat and grind it for flour. You make the chocolate for the chips. Need sugar and butter? You have to gather or create those, too.

**GARY:** Sometimes you have to build the oven. And the baking pan.

**SCOTT:** It’s so complicated. Definitely no instant gratification. But when you’ve gathered the ingredients, mixed them, baked them, and you take a bite of that cookie—and your experiment works—it makes that moment that much sweeter. ”

QUESTION SEVEN

# If you're interested in curing human disease, why use mice for research instead of sick patients?

“There’s a limit to the kinds of experiments we can do with humans. I mean, people are complicated.”

Dr. Linda Thompson



Much of Linda’s research on the human immune system started with findings gathered from the offspring of Hope, a mouse her lab genetically engineered.

“Some diseases are very hard to study in a human, so mice help us learn faster and without safety risks associated with human studies. Mice breed quickly (every 19 days), and we have good information on many of their important genes, similar to what we have on human genes.

Complex human diseases often result from interactions between different genes. Scientists have sequenced the entire mouse and human genomes, and those data are very powerful. In a human population, where every person is different and has a unique genetic makeup, it is very challenging to study almost any disease, especially those where multiple genes are involved.

In the lab, we use genetically inbred strains of mice, so every mouse has exactly the same genes. Because of that, we are able to manipulate their genetic makeup down to one single gene. We can put in new genes, knock genes out or make different forms of genes and observe the results in an animal model. You just can’t do that in humans.

Human clinical trials can cost millions of dollars, and still, in the end, most drugs fail. We need a way to narrow our choices for new drugs and test them in animals before trying them in humans. To skip animal studies and jump directly to human studies wouldn’t be safe. And who would volunteer?

We keep our mice in a very controlled environment, so we can eliminate many environmental factors, as well. We can control their stress levels, the food they eat and their exposure to infectious agents. In humans, that level of control would be virtually impossible.

No, it’s not a perfect system. But it’s just not practical to try a lot of interventions in humans without doing something in an animal model first.

For my area of research, there’s just no other biological system that would give me better results than I can get with mice.

The mouse is king.”

“Every gift OMRF receives is used to further the cause of medical research.”

Tim Hassen



As Vice President and Chief Financial Officer, Tim manages OMRF’s money, whether it flows in or out.

#### QUESTION EIGHT

When I give a dollar to OMRF, where exactly does it go?

“Many gifts come to us earmarked or designated to a specific research area, like cancer or lupus or heart disease. A full 100 percent of designated gifts go to that specific research area and nowhere else. We spend a lot of time and effort and accounting to make sure that’s actually true. We take that task very seriously.

Undesignated gifts go into a general fund and offer us great flexibility. They can be used to buy laboratory equipment, cover a scientist’s salary or any of hundreds of other purposes. Those funds allow us to focus on areas that need attention most.

At the end of the day, we’re here to help our scientists focus on research. We still function as overseers or gatekeepers when it comes to money, so we’re not always the most popular people at OMRF. But even when they don’t like what

we say, our researchers understand that we’re all working for the greater good of the institution.

Our exceptional ranking with Charity Navigator assures our donors that we run a tight ship, that our governance policies are good and that our accounting policies are sound. We consistently receive clean audits, and our administrative expenses stay quite low.

It’s not easy, but we’re always looking for ways to be more efficient and effective. It’s in the front of our minds all the time: how to grow the science without increasing our administrative side. Science takes priority. Always.”

QUESTION NINE

# Why study a rare disease when you could be trying to tackle a big one like heart disease or Alzheimer's?

“Rare diseases can help us answer questions about the basis of all diseases.”

Drs. Patrick Gaffney and Courtney Montgomery



Patrick, a physician, has identified the gene for a rare condition known as Adams-Oliver syndrome. Courtney, a biostatistician, focuses a portion of her research on sarcoidosis, a rare immune disease in African-American patients.

“As researchers, we focus on identifying the processes that lead to disease, regardless of what we call it. The more we learn about any condition, the more likely we are to find parallels to other disease areas along the way.

Neither of us set out to focus on the conditions we study today. Instead, we followed the research where our interests took us. It doesn't matter what they're called—they're all complex problems and all equally difficult.

But in the lab, we hope to identify the specific genetic changes that cause a particular condition and how they're unique or whether they might span across diseases.

We focus on genes, because of their influence on human health and behavior. We often use mice to study the way genes work in a living creature. By

removing or “knocking out” a gene from a mouse's DNA, we can observe how the animal's overall health is affected by the gene's absence. We just can't do that with humans. But Mother Nature can. Rare disorders tend to function as nature's knockouts, unusual occurrences of disease little known to scientists or physicians.

Why do we study rare diseases? To understand how genes work. We're seeking the truth, regardless of the condition. And as scientists, we have to stay flexible and curious, forever training, forever learning and remain willing to move in whatever direction the discoveries take us.”

“We’re very well known to one particular audience: scientists.”

Dr. Paul Kincade



Recognized as a star in immunology circles, Paul now shares his experience with all of our scientists as OMRF’s Vice President of Research.

## QUESTION TEN

# Why isn’t OMRF better known nationally – like St. Jude’s or the Mayo Clinic?

“When I came here from New York in 1982, I had never heard of OMRF or Oklahoma City. Some of my friends thought there was nothing but wilderness from the East River all the way to California. It was a mystery to them when I found myself looking at a job at an institution I knew nothing about in a completely unknown city.

OMRF had no celebrity spokesperson. No nationwide fundraising programs. But something seemed special to me as I visited this land-locked research foundation. And it was.

I soon left a large, well-known institution (Memorial Sloan-Kettering Cancer Center) to start a new phase of my career at OMRF, and I didn’t lose a thing in the process. The bigger place provided no better labs or resources than those I enjoyed for the next three decades here at OMRF.

It’s difficult to compare institutions and cities, because they’re all different. But one key to success is for the institution to adapt to its surroundings. OMRF’s biggest challenge may be geography or our state’s

association with Dust Bowl days. But our community truly appreciates and takes a genuine interest in what we do. They revel in our successes with us. They know important things happen here.

For scientists, there are distinct advantages in pursuing a career in a smaller place like OMRF. While others may boast of Nobel Prize winners and huge teams of researchers, for a young investigator, it’s hard to make a name for yourself in that environment. In a smaller pond like OMRF you can be a bigger duck. You can get credit for what you do and build a reputation that allows you to compete for grants. People will notice you. And when you do good work, they also will notice where you come from.

OMRF competes well against huge, well-funded teams of scientists. Do we need to be bigger, too? Not in a colossal way, and not to grow for growth’s sake. We simply need the right people with the right talents and expertise who will work together to answer important questions about disease. That’s how people will learn who we are. ”

“It’s a lot easier now that Oklahoma City is known for more than just natural disasters.”

Courtney Stevens



Courtney joined OMRF’s Human Resources Department in 2003 and became Vice President in 2013.

#### QUESTION ELEVEN

# How hard is it to recruit new scientists to Oklahoma?

“ Oklahoma City has been spotlighted as one of the most livable cities in the US, and the Thunder basketball team’s success has really put us on the map. OMRF’s multiple rankings as a “best place to work” definitely help us, and we make sure every recruit is aware of them.

Advances in technology have helped change perceptions of Oklahoma, too. People no longer come here expecting a “Wild West” atmosphere. We really are a hip, happening city, much like any other metropolitan area, and we have a lot to offer. Arts festivals. Live music. Museums. Sporting events. Nightlife. Diversity. We have it all.

As recruiters, we’re all about customization. People want to know the basics, but we tailor itineraries to a person’s specific needs. We want to show them those pieces of the city that will help them maintain their hobbies and their lifestyle here. Our weather is great most of the time, so there’s a lot of opportunity for outdoor adventures. Schools are a big deal, especially for families, so we set up school visits. Our low cost of living is always a pleasant surprise.

One question always comes up: What about tornadoes? Unless they’re from the Midwest or another area prone to storms, they always ask. But it’s a legitimate question. If I was going to move to California, I’d worry about earthquakes. And, hey, now we have both!

But the recruiting doesn’t end once they come to OMRF. We can’t stop that wooing process. Our scientists are attractive recruits for other institutions, so it’s up to us to keep them happy enough to want to stay here. So in a way, we have to re-recruit them as we go.

I think we’re successful because OMRF and Oklahoma City are everything we’ve promised. We do a good job of giving them a real picture of what it’s like here. No sugar-coating. Just a genuine and realistic picture. We never oversell, but we don’t undersell, either. I’d say we’ve done a good job with that, because the people we recruit tend to stick around.”

“We’ve already cured some cancers. But cancer isn’t just one disease, so our definition is flawed.”

Dr. David Jones



Dave joined OMRF in 2013 as the new chair of OMRF’s Immunobiology and Cancer Research Program.

## QUESTION TWELVE

# When will we cure cancer?

“When man landed on the moon, Americans thought we could conquer anything. Cancer included. But curing cancer is much harder than landing on the moon, because back then, we had a very simplistic understanding of what cancer was. It took decades for scientists to learn that cancer isn’t just one disease; it’s dozens of them. Curing cancer actually means eradicating around 50 diseases or more. One drug, one effort, one focus; that simply won’t get us there.

But if we step back for a moment, reality tells us that we can actually cure very few diseases now. We only manage them. People with high blood pressure or at risk of a heart attack take daily medication to treat those conditions. Still, their heart and blood pressure are never normal. Their diseases aren’t cured. They’re just controlled. If you can manage a disease for years, that’s almost as good as a cure, wouldn’t you say?

Cancer cells aren’t that different from the normal cells in the body, so we have to think about them very precisely and in entirely new ways. In my lab, we study

cancer cells as those whose original fate has changed. This ‘mis-fating’ occurs when the signals that tell a cell to die don’t reach the cell. So it continues to grow and divide. It becomes a hybrid of sorts, stuck in division mode. That cell is not inherently evil; it simply doesn’t know that it’s doing anything wrong.

Cancer happens when that signaling or programming goes awry. If we could erase that bad programming and reset cancer cells to their original fate, the cancer could stop. But mutations and inherited traits all complicate our efforts to fully understand it.

Answering the question of ‘When will we cure cancer?’ requires recalibrating people’s expectations about the disease. Will it be cured versus managed? Will it take one discovery or more? The answer is: It’s going to take many new findings.

We’re making dramatic improvements in treating and dealing with cancer. The key is to not think about cancer as an ‘it’ but instead to think of it as ‘they’ or ‘those.’ And we’ll pick them off, one at a time. ”

“We want to be a part of something that improves the quality of life, whether it happens now or years from now.”

Paul Schulte



Paul joined OMRF's Board of Directors in 1993. He and his wife, Carolyn, make their home in Kingfisher.

#### QUESTION THIRTEEN

Why do you keep giving to OMRF when you can't see the results now?

“I grew up on a wheat farm in Kingfisher County. For as long as I can remember, my parents supported OMRF. They taught me that giving to others mattered, and I saw it played out all over rural Oklahoma.

My parents never went to college, but they recognized the value of medical research in a most personal way. My dad suffered from polio as a child, and he witnessed the advent of a cure during his lifetime. Research, he and others of his generation readily acknowledged, was instrumental in that cure.

I'm excited to be a witness to what OMRF does from a research perspective and also how it advances the image of our state. I can't think of another institution that embodies the spirit of Oklahoma any more than OMRF does. It attracts people from all walks of life and rivals of all stripes—Democrats, Republicans, OU fans, OSU fans, liberals and conservatives. They come together here. Hatchets are buried, because when OMRF succeeds, it's

important to everyone. Its mission of helping people live longer, healthier lives generates a spirit of cooperation and progress that's unique and one that also blends perfectly with the Oklahoma spirit.

Farmers always strive to leave the land better than they found it. It's an obligation they happily pay in respect to their predecessors and as a gift to those who follow after them. Rural Oklahomans, particularly farmers and ranchers, are sensitive to the cycle of life. They know how that cycle can suffer or benefit from outside influences. Maybe that's why they put their faith in OMRF. I know I do.

Progress gained from medical research can extend and enhance that life cycle. And when research improves the life of just one person, it impacts us all. ”

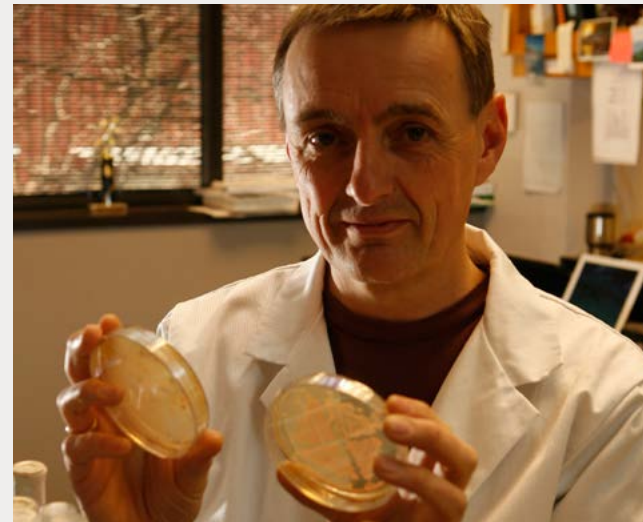
# 2013 In Review

## JANUARY

Drs. Ken Smith and Judith James used a process developed at OMRF to find a new way to fight pneumococcus bacteria—a major cause of pneumonia, ear infections and meningitis. In a paper published in the journal *Immunobiology*, they explained how they'd created the kinds of antibodies a healthy immune system makes after receiving the vaccine. In the future, this finding could be used to treat patients with pneumonia while the antibiotics begin to work.

## FEBRUARY

Dr. Dean Dawson's paper in *Science* showed how new "master regular" genes control cell division, a discovery that has important implications for preventing both cancer and birth defects.



## MARCH

A new \$7.8 million grant from the National Institutes of Health will help five OMRF scientists studying cancer, diseases of aging and other illnesses jump-start new projects over the next five years. The grant will also support institutional core facilities and create an Institutional Development Award (IDeA) Center of Biomedical Research Excellence at OMRF.

## APRIL

In a paper published and highlighted with a commentary in the journal *Genetics*, OMRF researcher Dr. Kenneth Miller described how *unc-16*, a gene humans share with tiny roundworms called *C. elegans*, may act as a kind of "gatekeeper" that keeps cellular order in the nerve cells.



## MAY

OMRF selected 40 Oklahoma students for the inaugural Teen Leaders in Philanthropy class. Students from 18 metro and area high schools came to OMRF each month during the academic year to learn the basics of development, networking and non-profit management.



## JUNE

OMRF scientist Dr. Susannah Rankin received a new grant from the National Institutes of Health to study how chromosomes are packaged during cell division. This work will help scientists understand processes that are crucial to human development.

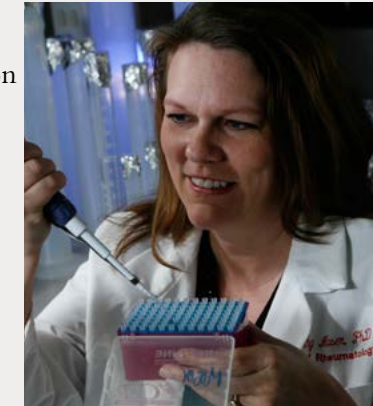
## JULY

We recruited Dr. David Jones, an internationally recognized expert in colon cancer and personalized medicine, from the University of Utah to lead the expansion of OMRF's cancer research programs.

OMRF scientist Dr. Paul Kincade found what may amount to a "fountain of youth" for adult stem cells. The discovery could have implications in reducing age-related illness from infection.

## OCTOBER

An international coalition of researchers led by Dr. Kathy Sivils identified six new genes related to the autoimmune disease Sjögren's syndrome.

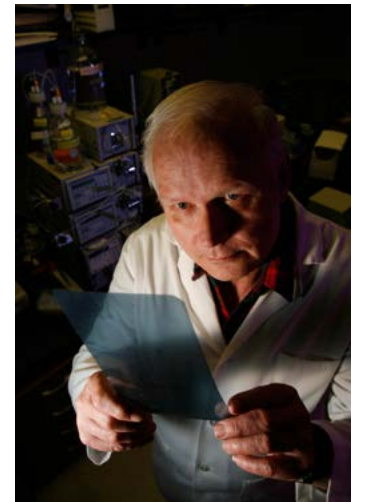


## AUGUST

OMRF launched its first-ever clinical trial for Oklahoma cancer patients. That trial gives patients suffering from a deadly form of brain cancer access to an experimental drug developed at OMRF. The watershed trial comes as a result of a partnership between OMRF and the Stephenson Cancer Center at the University of Oklahoma.

## NOVEMBER

A new five-year grant will support research at OMRF and a consortium of other institutes to understand the cause and find new therapies for bleeding disorders. OMRF scientist Dr. Charles Esmon will serve as a part of the Trans-Agency Consortium for Trauma-Induced Coagulopathy, or TACTIC, which will examine why bleeding becomes an unmanageable problem for some trauma patients.



## SEPTEMBER

Working with OU, OSU and tribal health authorities, Dr. Judith James secured a major grant that will help deliver more effective care to patients in rural Oklahoma.



Dr. Lijun Xia and his colleagues discovered the process that allows lymphocytes to exit blood vessels without releasing red blood cells. The findings, which were published in the journal *Nature*, could help doctors treat traumatic injuries and serious infections.

## DECEMBER

Dr. Holly Van Remmen joined our scientific staff from the University of Texas-San Antonio. An expert in neuromuscular disorders that affect the aging population, her research focuses on extending and improving a person's "healthspan."

# Impact in 2013

5,705

Number of patient visits to OMRF's Multiple Sclerosis Center of Excellence

127

Number of active research grants

30

Number of clinical trials underway—29 for new medications and 1 in physical therapy



150

Number of scientific publications

113,800

Pounds of dry ice used in OMRF labs

-80°C  
(or -112 F)

The temperature in OMRF's Biorepository, an ultra-cold storage facility that preserves vital scientific samples from thousands of patients with autoimmune diseases.

Total Capacity:  
More than 5 million samples

Current repository samples: 1,012,300

From 1981 - 2013, we have collected samples from more than:

- 200 multiple sclerosis patients
- 800 fibromyalgia patients
- 3,445 sarcoidosis patients
- 6,000 lupus patients
- 10,000 healthy controls
- 65,000 Clinical Immunology Reference Laboratory samples

Clinical & research studies supported: 53

Number of students we trained

3 John H. Saxon Service Academy Summer Research Program Students

4 Presidential scholars

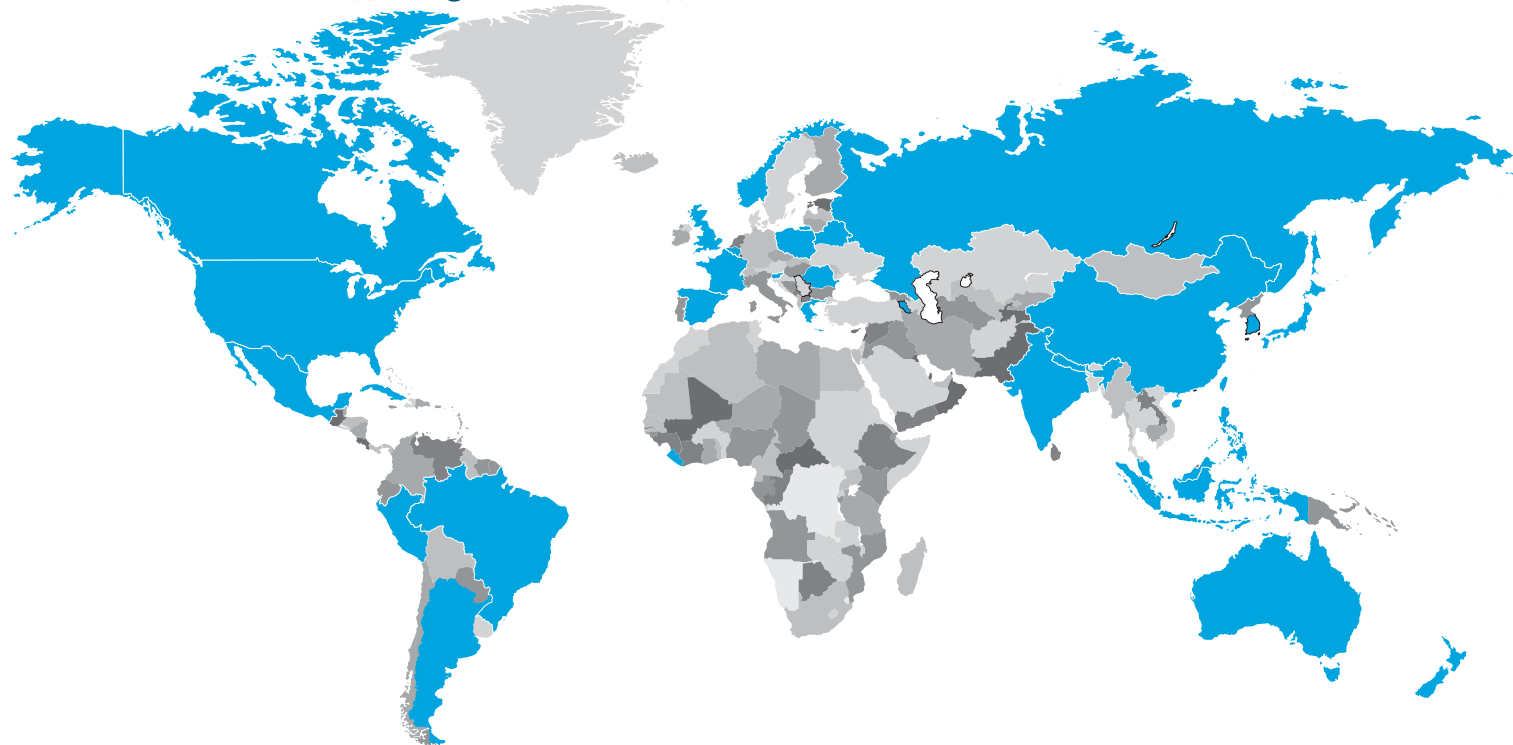
9 Fleming scholars

33 graduate students

38 postdoctoral fellows

40 Teen Leaders in Philanthropy

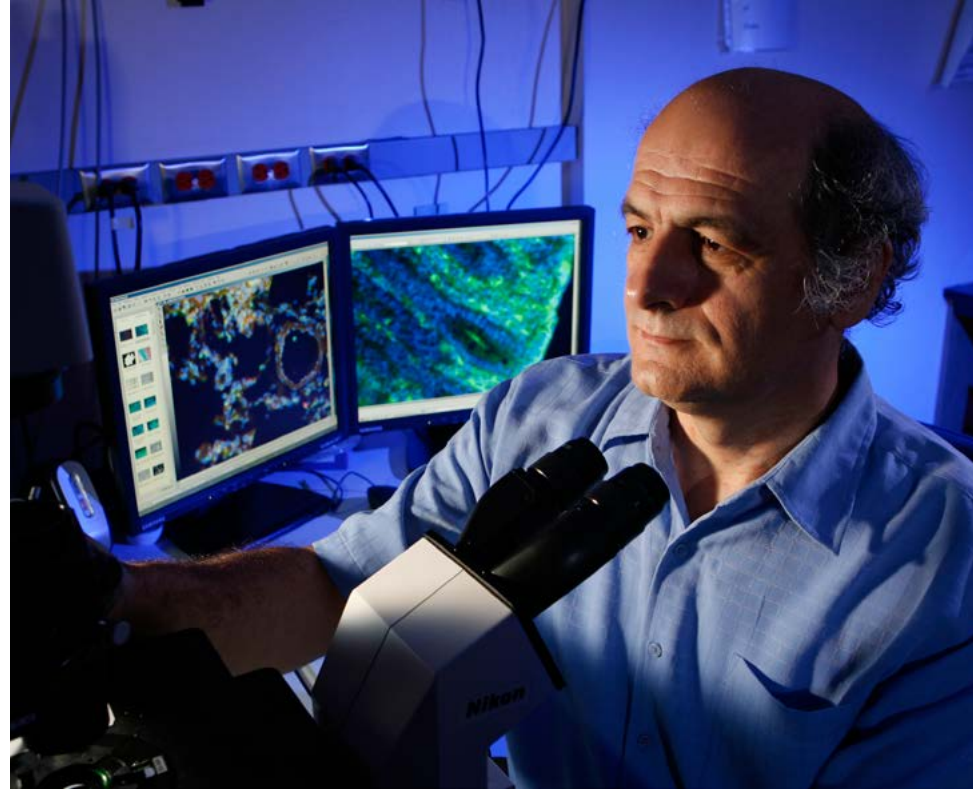
OMRF employees represent 32 countries



10,971

Gifts honoring 7,566 people through donations to OMRF

## Selected Publications



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Kim S, Meyer R, Chuong H, Dawson DS. Dual mechanisms prevent premature chromosome segregation during meiosis. *Genes Dev* 27:2139-2146, 2013.

Liu H, Rankin S, Yu H. Phosphorylation-enabled binding of SGO1-PP2A to cohesin protects sororin and centromeric cohesion during mitosis. *Nat Cell Biol* 15:40-49, 2013.

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Wang S, Wen F, Wiley GB, Kinter MT, Gaffney PM. An enhancer element harboring variants associated with systemic lupus erythematosus engages the TNFAIP3 promoter to influence A20 expression. *PLoS Genet* 9:e1003750, 2013.

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# 12

Number of consecutive years OMRF has received the highest possible rating from CharityNavigator.org, the nation's largest charity evaluator.



## The Best of 2013

# 6

Our rank among large companies in "The Oklahoman" newspaper's list of "Top Oklahoma Workplaces for 2013." Employees surveyed graded their workplaces in areas such as the employer's direction, connection and execution, as well as their own feelings about their work, manager and pay and benefits.

# 10

OMRF's place on "The Scientist" magazine's list of the 20 "Best Places to Work in Academia." Those on the list include institutions from across the United States. The rankings were based on surveys that gathered more than 1,200 responses from scientists across the country.

# 7

What a gift! "The Street," a national online investing and financial news site, named OMRF as one of its "10 Best Charities for Christmas 2013." Only six other charities topped OMRF in the overall rankings.

# 3



Where we ranked in "The Scientist" magazine's annual list of the "Best Places to Work for Postdocs." For the third year in a row, OMRF made this prestigious list. This year the foundation ranked third best among U.S. and some international research institutions in nine different core areas including quality of facilities, training, communication, and pay and benefits.

## Selected Financials

OKLAHOMA MEDICAL RESEARCH FOUNDATION SELECTED FINANCIAL INFORMATION - OPERATING FUND		
	2012-2013	Prior year
<b>OPERATING REVENUE:</b>		
Competitive research grants:		
National Institutes of Health grants	\$ 27,314,110	\$ 29,271,848
Other competitive research grants	<u>6,470,648</u>	<u>7,559,352</u>
Total grants	33,784,758	36,831,200
Private contributions:		
Income and gifts from trusts	6,860,429	6,871,846
Gifts & bequests	635,344	677,300
Contributions	1,901,439	2,287,906
Memorials	<u>755,710</u>	<u>755,613</u>
Total private contributions	10,152,922	10,592,665
Other revenue:		
Clinical revenue, net of provisions for contractual and other adjustments	3,091,109	1,494,341
Interest and investment income	1,358,721	1,354,395
Mineral income	1,183,571	1,353,847
Rent	499,780	498,469
Royalties and licensing income	384,216	892,611
Loss on disposal of assets	62,164	(249,490)
Other	<u>1,440,557</u>	<u>1,117,460</u>
Total other revenue	8,020,118	6,461,633
Total revenue	51,957,798	53,885,498
Operating revenue from wills, pledges, and other restricted gifts recorded in prior years	5,440,188	8,849,536
<b>TOTAL OPERATING REVENUE</b>	<b>57,397,986</b>	<b>62,735,034</b>
<b>OPERATING EXPENSES:</b>		
Program Services - Research	45,628,999	47,877,133
Program Services - Clinic Operations	6,374,088	4,589,765
Support Services - General and administrative	<u>3,958,264</u>	<u>4,583,880</u>
Total operating expenses	55,961,351	57,050,778
<b>EXCESS OF REVENUES OVER EXPENSES</b>	<b>\$ 1,436,635</b>	<b>\$ 5,684,256</b>

# OMRF Honor Roll

Between January 1 and December 31, 2013, more than 6,000 individuals, corporations, foundations and organizations made gifts and pledges to OMRF. Each one of those donations made a difference. In this Honor Roll, we have recognized gifts of \$500 and above. Your generosity makes life-saving discoveries possible.

## \$5,000,000 +

Chapman Charitable Trusts

## \$1,000,000 - \$4,999,999

E. L. and Thelma Gaylord Foundation  
New Source Energy Corporation  
Sarkeys Foundation

## \$100,000 - \$999,999

David J. Chernicky  
Choctaw Nation of Oklahoma  
The Dillingham Family  
Ann Gibbons Trust  
Gooch Hill Testamentary Trust  
The Hocker Foundation  
George W. and Valeria G. Howard Trust  
Mary Beverly Kobel Trust  
Marvin and Ruth Lebow Medical Research Foundation  
The J. E. and L. E. Mabee Foundation, Inc.  
McCasland Foundation  
Presbyterian Health Foundation  
Puterbaugh Foundation  
Records-Johnston Family Foundation, Inc.  
United Way of Central Oklahoma  
The Anne and Henry Zarrow Foundation

## \$50,000 - \$99,999

The Anschutz Foundation  
The Chickasaw Nation  
Wilma Davis-McElmurry Trust  
Clyde R. Evans Charitable Trust  
Dr. William D. Hawley  
John D. Karr Trust  
The Kerr Foundation, Inc.  
Mr. Dale Matherly  
Matherly Mechanical Contactors, Inc.  
Katie and Aubrey McClendon  
Glenn W. Peel Foundation  
Susan and Stephen Prescott  
Putnam City Schools Cancer Fund  
Estate of Kuni J. Rankins  
Dr. John H. Saxon, III  
Estate of Lora Jean Wohlford  
Estate of Evelyn Wynell Woodruff  
Virginia Zimmerman Trust

## \$25,000 - \$49,999

Hildegard Suzy Carter Revocable Trust  
Chesapeake Energy Corporation  
MS Bridge Fund  
Cresap Family Foundation  
Susan and Ramsey Drake  
Virginia and John Groendyke  
Carl E. Gungoll Exploration, LLC

Richard K. and Ruth S. Lane Memorial Trust  
Love Family Affiliated Fund – OCCF  
Mrs. Dimple C. Mobbs  
Mr. and Mrs. Lew O. Ward

## \$10,000 - \$24,999

Elizabeth and Greg Allen  
Allen Family Charitable Foundation  
American Fidelity Foundation/American Fidelity Assurance Company  
Anonymous  
Linda and Lance Benham  
Mr. and Mrs. Todd Best  
Biogen Idec  
Elizabeth and G. T. Blankenship  
Mr. and Mrs. Charlie K. Bowen  
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Becky and Jim C. Buchanan  
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Cleo Craig Memorial Cancer and Research Foundation – OCCF  
Devon Energy Corporation  
Christy and Jim Everest  
Hal French  
Frontiers of Science Foundation of Oklahoma, Inc.  
Estate of Albert Wayland Green  
Growing the Vision of Light Foundation  
Harris Foundation, Inc.  
G. Ed Hudgins Family Fund – OCCF  
Inasmuch Foundation  
Herman G. Kaiser Foundation  
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Kirkpatrick Foundation, Inc.  
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Dr. Bill P. Loughridge  
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Nadine and Frank McPherson  
Midtown Renaissance  
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NBC Oklahoma  
OMRF Fleming Scholarship – OCCF  
OMRF General Research – OCCF  
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Simmons Charitable Foundation  
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Teva Pharmaceuticals  
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Mr. and Mrs. Paul A. Wege  
Mrs. Nancy Wienecke  
Linda B. and Don A. Wiens  
Mrs. Frances E. Wilson

## \$5,000 - \$9,999

Mr. Steven C. Agee  
Judy and Winford Akins  
Ann Simmons Alspaugh  
Anonymous  
Arvest Bank  
Asbury Medical Supply, LLC  
Bank of Oklahoma/Bank of Oklahoma Foundation  
Miss Betsy L. Barnes  
Louise G. and Clay I. Bennett  
Best Companies  
Mr. David Bishop  
Dee-Dee and Bart Boeckman  
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Cross Family Benefit  
Alice R. and Don W. Dahlgren  
Mr. and Mrs. Louis M. Dakil  
Mrs. Nancy J. Davies  
DCP Midstream Matching Gifts Program  
Duncan Oil Properties, Inc.  
Susan and Carl E. Edwards  
Flintco, LLC  
Mr. and Mrs. Mark W. Funke  
Ann Felton and Bob H. Gilliland  
Mr. David W. Gorham  
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Oklahoma Electrical Supply Company  
Mr. Gene Rainbolt  
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Nancy and George Records  
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Carolyn and Paul I. Schulte  
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Paul and Jane Stasbaugh Family Trust  
United Mechanical, Inc.  
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Mrs. Naomi Welty  
Jodi and Steve Wilsey  
Barbara D. and Stephen F. Young

## \$1,000 - \$4,999

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Anonymous  
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ARINC, Inc.  
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Peggy and Del N. Boyles  
Barbara and Rick Braught  
Patti K. and John A. Brett, III  
Brett Exploration, LLC  
Gertrud and Neil Briix

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Casie and Kyle Brownlee  
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Darla and Andy Campbell  
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First Bank and Trust Company  
First National Bank in Altus  
First National Bank of Oklahoma  
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Elaine and Glenn Floresca  
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Mr. and Mrs. Mark A. Fortuna  
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Fred Jones Family Foundation  
Mrs. Josephine W. Freede  
Mrs. Barbara Fretwell  
Deborah K. and Richard H. Friant  
Amy and Patrick M. Gaffney  
Ms. Pat Gallagher  
Jane Jayroe and Gerald Gamble  
Dr. and Mrs. John H. Gardner  
Debra and Robert Gholston  
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Harriet and Larry Gilbert  
Jean and Ben Gile  
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Nancy and Jerry Glasgow  
Ms. Carol A. Glass  
Mrs. Susan A. Gonzalez

Drs. Marie Hanigan and Gary James Gorbsky  
Danae and Evan Grace  
Grant Thornton, LLP  
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Mr. and Mrs. John Ray Green  
Griffin Holdings, Inc.  
Mrs. Debra Gudgel  
Rozella and Jim Hadwiger  
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Mr. James H. Harrod  
Mrs. Maxine B. Hartman  
Mr. Ronald F. Hartman  
Erin and Tim Hassen  
Dawna and Marc Hatton  
Debe and Rick Hauschild  
Mr. and Mrs. Russell O. Hayes  
Mrs. Bonnie B. Hefner  
Ms. Evelyn Helm  
Ms. Audrey M. Hendershot  
Mr. and Mrs. Frank X. Henke, III  
Kim and Brad Henry  
Myra and Gene Henry  
Mrs. Michelle J. Henry  
Mrs. Lois C. Herndon  
Ann D. and Michael E. Hill  
Bette Jo and Frank D. Hill  
Mr. and Mrs. Ronald Hill  
Ms. Jo Ann Hintergardt  
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