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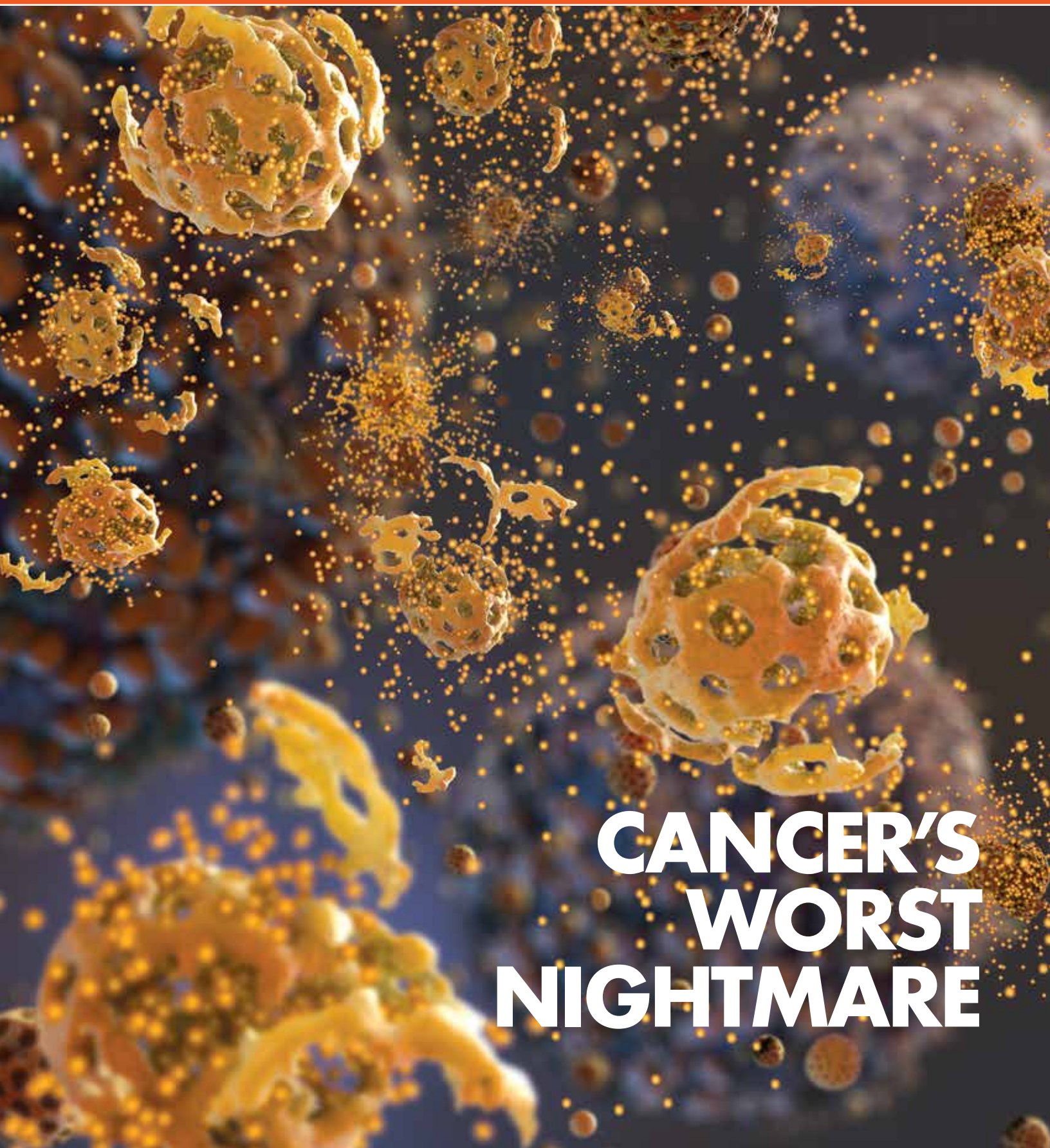

CANCER'S WORST NIGHTMARE

DEAN'S MESSAGE

We are only as successful as how much we teach our students. I hope you will see that through these pages. They reveal accomplishments—such as our potential breakthroughs in cancer and multiple sclerosis—and our students have been there many steps of the way. In fact, in the case of research related to light's effect on cancer, it was an undergraduate student's idea that got it started—and that student was rewarded with co-authorship of a paper.

We want you to see that we are leading—in fact, we are number one in the country in both Alzheimer's research and cyber security. Our school even took the step of starting the national college championships in the latter category. Just one chance for us to expand student opportunities beyond our doors to young people throughout the entire country.

We also are ranked as leaders in areas such as vaccine research and medicinal chemistry. Trying to change the world one test tube, one microscope slide at a time.

We are here for the region, equipping K-12 teachers with better math and science methods through the GE²MS (Generating Educational Excellence in Math and Science) Teaching Program. And we influence some of their students directly with the College of Sciences Summer Research Program for STEM training.

These programs define what the College is all about—community, commitment and coming of age. To see the look in a young person's face when he or she realizes STEM is not a mystery but an opportunity—that is priceless.

Of course, our work does sometimes come with a price and this issue is a chance to spotlight our donors and grantors. Individuals, private and government foundations, and corporations are the lifeblood for so much of our work. You keep us moving forward and give us the encouragement that we are on the right path.

I invite you to page through this issue and see just how many successful paths we have taken – thanks to you and your exceptional support and belief in our efforts.

GEORGE PERRY, PHD
SEMMES FOUNDATION DISTINGUISHED CHAIR IN NEUROBIOLOGY
DEAN, COLLEGE OF SCIENCES

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UTSA *'Secures' Number One* IN THE NATION

We've been training cities, educating students and hosting a college cyber security championship.

Greg White, an Air Force veteran, looks out of his office, water on a compact disc serving as a coaster. "It's my way of making old technology still good for something," he jokes. But White helps lead one of the most serious areas the university deals in. We sit there, taking in UTSA just being ranked number one in the country in the issue of cyber security, according to a survey conducted by the Ponemon Institute for Hewlett-Packard. "Many institutions overlook its importance," says White, who serves as the Director of the Center for Infrastructure Assurance and Security (CIAS). "That's just what the people causing trouble in technology are hoping."

Though several arms led to the number one ranking, let's begin with CIAS. The Department of Homeland Security hired the school to go out to more than 50 cities to teach them how to protect themselves, stretching the map from Augusta, Maine to Costa Mesa, California. And that's exactly what CIAS did. "The funny thing is that people think it's meeting with IT experts," he says. "They already know what needs to be done. It's meeting with members of police, sometimes mayors, people who are leaders but have never been trained on how easy it is to have a security breach. If we can make them understand then they'll pass that message on to others. They'll change their conduct."

You may imagine this is somehow teaching them complicated encryption. Possibly turning them into a computer maven. But a key factor is just actually not overlooking the basics. "Some of the best training principles you can have is to not overlook the everyday," he says. "I've seen people with passwords for their computers that were so obvious. Sometimes it's literally whatever month it is... Or it's private documents that need to be shredded but aren't. There are people diving in dumpsters to get that material. You think it's someone just trying to get cans to recycle—that's what the bad guys count on. If we don't educate the average person, the results will be devastating. That thought process is true cyber security."

They've also created a program for young children to be rolled out shortly. "What we are doing is developing some 'learning modules'/games for teachers to use to help their students learn something about security and online safety," he explains.

Research is critical to UTSA's cyber security strength as well. Under the leadership of Ravi Sandhu, the Institute for Cyber Security (ICS), established with a $3.5 million grant from the Texas Emerging Technology Fund, helps achieve this. The Institute's philosophy is to give equal priority to achieving desired security by use of existing security technology where applicable and invention of new security technologies where needed. In fact, ICS has built and operates two research laboratories (FlexFarm and FlexCloud), both grant-funded and even receiving additional support from Dell Computers, Rackspace, Joyent and the Air Force Office of Scientific Research. "Our goal is to conduct world-leading research on cyber security for real-world impact!" Sandhu says.

Next, the Center for Education and Research in Information and Infrastructure Security provides research opportunities as a joint entity of the College of Business and the College of Engineering. The Advanced Laboratory for Infrastructure Assurance is a leading initiative of the Center, supporting faculty research in many areas, including network intrusion detection, development of forensic search algorithms and security modeling with genetic algorithms.

UTSA also offers challenging academic programs for students interested in a career in cyber security, whether their focus is computer programming and networking or applying technology to an organization's needs. The Department of Information Systems & Cyber Security offers a Ph.D. concentration in information technology, an MBA concentration in infrastructure assurance and a B.B.A. in infrastructure assurance. The Department of Computer Science offers B.S. and M.S. degrees in computer science with concentrations in computer and information security.

Getting Competitive

And UTSA offers cyber security competition in a different arena. Helping to create an intensive two-day real-world contest known as the National Collegiate Cyber Defense Competition, some of the best computer minds in the nation come together in San Antonio to push each other to the limit.

Maybe think the coding competition scene from the film about the birth of Facebook, *The Social Network*—only more official and with a bigger space.

As explained on the Competition web site, it is "...unique in that it focuses on the operational aspect of managing and protecting an existing network infrastructure. While other exercises examine the abilities of a group of students to design, configure, and protect a network over the course of an entire semester, this competition is focused on the more operational task of assuming administrative and protective duties for an existing 'commercial' network." Teams are evaluated on everything from the high pressure of detection and response to outside threats to interacting on business requests.

"It's not just that it's exciting to watch them perform," White says. "There are also recruiters there that result in jobs every time we hold it. It just reminds you how early technology affects young people and how advanced they are. They can change the world."

With accolades and continuing to expand its academic opportunities, where does the reach of the cyber security program extend next?

"...There are always new ways to look at the subject..." White says. "But you could say when cyber security does its job right, you don't know we're there."

Then again, a number one ranking might make that a little more difficult.

A GEM *of a Program*

Learn about the program that knows creating math and science teachers isn't just a simple equation.

GE²MS, in many ways, is about answering one important question for students pursuing math and science degrees: "Do you want to teach?"

The problem is many students aren't sure if they want to put their money where their mouth is. If they later decide teaching isn't for them, they've now spent a good deal of their tuition money to find out. But Pat and Tom Frost and the Frost Foundation realized the importance of easing students' minds by donating to the GE²MS Teaching Program.

What has resulted is one of the key local pipelines contributing to STEM education, a vital undertaking when you consider that the San Antonio area needs to replace roughly 270 math and science teachers each year.

Offering the chance to receive a degree in math or science, along with a teaching certificate at the same time, GE²MS, which stands for Generating Educational Excellence in Mathematics and Science, is the largest math and science educator preparation program of its type in the South Texas region.

Joseph Lazor, founding director of the program and a former high school teacher in San Antonio, remembers the inaugural year of GE²MS very well. "There was a curiosity in people's eyes because many of them had never thought of teaching before the program was offered," he says. "They realized maybe they could create a different experience than they had growing up."

Three courses make up the introductory portion of the program, representing the elementary, middle school and high school levels. Students work directly with a master teacher in the field, and receive mentoring while observing the classroom. It culminates at each level with students taking "the baton" and teaching all or part of a class.

Throughout the program, Lazor says participants are always taught the importance of revealing practicality and relevance. "When students ask when we will need math and science, we as teachers need to answer this," he says. "For example, what it takes to get a tomato from another country on to your table—math and science are involved all the way through. Engage the student's interest through incorporating the real world—not just teaching or solving the equation but what is the application of it? Students can stare at you with glassy eyes if you don't make the work relatable."

Graduation Doesn't End a Relationship

Ashley Tucker, now in her second year of teaching math at Pat Neff Middle School, has seen firsthand what GE²MS can do. "For the student teacher semester, I had a great mentor and I was able to realize how much of your time and lesson planning it takes," she says. But her confidence was only boosted in her first year in her own classroom. "GE²MS actually paid a student to work for me to make my experience easier," Tucker says. "She would come in and could help with the classroom, grade or make copies."

The program actually offers mentoring and peer support for new teachers through the first two years, realizing how difficult the classroom experience can be at the start of a teaching career. The daily demands of teaching diverse subjects, students who may not respond and understanding how to navigate the personalities of co-workers in a school system—these are challenges any teacher can find difficult.

Thankfully, the influence of the undergraduate course and post-support has had a strong effect on retention. "In the state of Texas, 92% of teachers who completed the GE²MS program remained in the teaching profession after the three-year mark," says Carey Walls, assistant director of GE²MS. "One way (to get it higher) is to raise funding to provide mentoring for even longer. If a school can't get new teachers to remain, it hurts the consistency of the program. The last thing you want is for a teacher to leave if more guidance could have made the difference."

The program recruits an average of 75 students each year, an increase of 40% since 2008. And the employment rate of certified GE²MS graduates is nearly 100%.

Another Educator Leads the Way

The director of GE²MS, Deborah Weissling, like Lazor, taught in San Antonio—her love of teaching made it hard to leave the classroom but was also the very reason she felt she needed to lead GE²MS. "This is the perfect position to make a difference," says Weissling, whose San Antonio teaching experience was in the Judson and Northside school districts and was almost exclusively in science. "When you see a student graduate and get their own classroom, see them have the experience I did, it means so much. Each teacher will have approximately 180 students every year—that's thousands of students all of them will impact together in the first year alone. When a student is excited about math and science, they're more likely to go to college... UTSA is a part of the whole cycle this way."

And GE²MS keeps expanding. In fact, UTSA has been awarded a $1.4 million National Science Foundation grant to assist community college students interested in pursuing teaching degrees in mathematics and science.

Under the new grant, community college students transferring to UTSA will be eligible to receive up to $20,000 in Noyce scholarships if they agree to teach at least four years at a high needs school district in the San Antonio area.

This gets GE²MS closer to one of its biggest goals, increasing student scholarship support – especially during the semester of student teaching; a rigorous time with heavy demands on students' time and finances since student teaching is equivalent to a full time job with no pay.

Lazor admits he isn't surprised by the continued expansion of the program and its success because it provides immediate experience. You go to law school, for example, and it's years before you argue a case. Here, the lectern is quickly yours. "And people forget that there's a benefit even when they don't decide to continue," he says. "I can remember two guys who finished the introductory course for GE²MS and realized it wasn't for them. But after the kids hugged them when they were through, they had tears in their eyes and a new appreciation for teachers. If this makes participants more active in their schools as parents, that in itself is a victory."

Two passionate professors approach multiple sclerosis from different angles.

MS Making Strides

John Quarles, assistant professor of computer science, knew what multiple sclerosis can put someone through—watching his sister Jennifer be diagnosed, he understood all too well. Then life unfortunately made him understand better.

Diagnosed himself in 2005, Quarles has taken on this debilitating disease, which causes everything from lack of muscle coordination to even disorientation, with his greatest weapon—technological wizardry.

"Several of my projects are about improving rehabilitation," says 32-year-old Quarles. "I've found it can make it more motivating to take somebody and put them in a place other than a rehab clinic. Why not be in a castle game, rather than rehab exercises? I took my interest in the virtual world and found a way to apply it to multiple sclerosis...Why not involve something like a dragon, make it fun?"

And why not just let them feel like they belong?

"We have all of these charity walks for people with MS but many of the people who have it can't participate," he says. "We thought of a way to change that."

One example involved the Walk MS event at the AT&T Center in San Antonio. Given models of the Center that were incredibly elaborate allowed Quarles and his team a chance to carve out a virtual recreation. Now those on a computer could "walk" the Center and feel they were a part of it.

"We have a laptop set up for this but the eventual goal is to integrate (next year) with mobile phones so they can talk to people throughout a real walk," he shares. "Someone can virtually say, 'Meet me at this part of the Center.' Then when the walker gets there, it really feels like they're together!"

With a team of students ranging from a PhD student to undergrads, it's a project that the National Multiple Sclerosis Society even invested in. "Hopefully we'll have people virtually walking to many places before it's done."

Other Quarles' work focuses on helping people with MS with mobility. Employing a video game development tool from Unity Technologies, his team is observing how a game interface cane can help someone with MS use a real one.

"A cane is just for balance but there's a tendency to put weight on it," he says. "That has several negative physical effects over time...When you put weight on it, you'll slow down in the game... Your competitiveness hopefully takes over and you use that cane better long after the game is over."

In addition, his team is studying the effects of working with an avatar. Here users see a virtual body when they look down at themselves in virtual reality. And when they move their actual body? Their avatar moves along with it.

"It is interesting that when people have an avatar in the virtual world they tend not to be affected but MS patients will not walk as well," says Quarles. "For certain rehabilitation, this shows that you may not want to give them as much visual feedback from their avatar...On the other hand, we also found that when you speed up their walking as an avatar it can make them feel they are walking better. The results are fascinating."

His sister seems to think so—she's been involved as a subject in much of his testing. "She gives great feedback and, more than that, she's been a great support for me," he says. "We understand each other and navigate MS with the help of each other...That's a big goal with my work—to help others feel more comfortable."

Saying Game Over to MS

But eradicating the disease itself? That's a whole different dragon to slay.

Still, Thomas Forsthuber, MD, PhD, believes his and other leaders' work shows it is possible.

"You have to remember that 20 years ago there was little treatment," says Forsthuber, who has been at UTSA since 2005. "When I was in medical school, I attended a class and learned about MS. The professor was talking about how limited things were in what could be done. What we did know was that this awful disease was taking young women in their best years, some of them young mothers, and it was just destroying their spirit."

Forsthuber has been studying a mouse model of experimental autoimmune encephalomyelitis to unlock the disease, with major backing from the National Multiple Sclerosis Society and the National Institutes of Health. Forsthuber has been part of a joint effort, which includes Provid Pharmaceuticals, to affect a pathway in the disease that can provide therapeutic benefit. Working on the PV-267 inhibitor, the goal is to produce molecules that work with immune cells to disrupt how MS attacks the brain.

Forsthuber's molecule studies have yielded encouraging results but are admittedly expensive just to test. "Each molecule (we test) is $1,000—and we just went through 14 or 15 that fast," he says. Fortsthuber is continually encouraged that every molecule could get us closer to a cure. "I can look people in the eye and say a cure could just be a few years away, that someone is going to do it," he says. "But what has to happen for our work is to take what he have learned already into studies where we can look at clinical trials or samples from patients, to analyze blood samples."

Extensively published, including as a co-author in *The Journal of Immunology*, Fortsthuber hasn't lost any of his energy from the day he stepped into a classroom and learned of the once hopeless fate of MS victims. "So many lives hang in the balance and we can't stop believing now," he says. "You have to realize that we're not just researchers in labs. I've met many people with MS through my work and I care deeply about them. I come to the lab every day for them—that one day they will be free."

The vaccine VOW

Here is how we're giving disease research a shot in the arm.

When a disease has been around long enough, a population often goes to the last stage of grief: acceptance. But the University of Texas at San Antonio isn't interested in acceptance. We're interested in inoculation. That's why more than 20 professors of science and research make up the South Texas Center for Emerging Infectious Diseases (STCEID), established with the goal of answering critical questions relating to these diseases but also ones created by bioweapons.

As unthinkable as it might have once been, many young people haven't heard of polio. Meet just a few members of our vaccine team who vow to keep fighting to give other diseases a similar fate.

Taking On a Deadly Weapon

Unfortunately, not all diseases are simply humans vs. nature. For more than a decade, Karl Klose has been focused on fighting Tularemia, a bacterial disease that potentially becomes fatal when the bacteria are inhaled. "Sadly, (Tularemia) is a possible biological weapon," says Klose, a member of STCEID. "The symptoms are relatively non-descript…Countries have shown it to be effective when spread through aerosol, and these are natural organisms that anyone can get their hands on. Like anthrax, the worry is that someone will use these bacteria as a bioweapon."

But, unlike anthrax, we're still waiting for an effective vaccine to fight it.

"A challenge when working with these organisms is the high level containment lab where we do the research," he says. "It's important to keep the bacteria in a highly secure lab, but there are many government rules and regulations which make your work move slower. Plus the spacesuits that we are required to wear make everything cumbersome."

Right now a hurdle is figuring out how to protect human beings through vaccination. Still, continuously amping up his efforts since a $5.4 million National Institutes of Health program project for him and his multi-institutional team in 2005, and developing a tularemia vaccine patent in 2010 with Bernard Arulanandam, Klose is quick to point out that many research groups throughout the world are in on this fight. "This is an ongoing process," he says. "But it's important to protect our population from bioterrorists."

A Lesser Known Fever

Garry Cole, who holds the Margaret Batts Tobin Distinguished Chair in Biotechnology, has taken up a battle against a disease most of the country doesn't know about, except maybe for the 30 million residents of Texas and the rest of the Southwest who know it all too well: San Joaquin Valley fever. For those infected, the results can impact their life for months—or even prove fatal.

Though many exposed to the pathogen are asymptomatic, a common ailment is flu-like symptoms that can extend longer than most flu seasons you've come across. In few cases, Cole says, the disease can lead to meningitis. "Because San Joaquin Valley fever is not a disease that's well known by physicians throughout the world, when infected, tourists develop symptoms after returning to their native country and diagnosis can sometimes be problematic," Cole says.

Working on a vaccine for more than a decade, Cole says recent results using a live vaccine have been very encouraging. In fact, it has been found to be 100% effective in pre-clinical studies.

San Joaquin Valley fever is also a potential threat to the more than 350,000 military personnel who train and are stationed in semi-desert regions of the U.S. where the mold that causes the disease is found in the soil. "Non-human primate studies have shown that inhalation of as few as 10 spores of the soil-borne mold can cause symptomatic disease," he says.

"A peculiar feature of San Joaquin Valley fever is that individuals with original asymptomatic infections may experience reactivation of the disease months to even years later." Development of a vaccine will help prevent this disease from becoming a risk for people who reside in or travel to southwestern regions of the United States, he says.

Research for Sexual Health

UTSA vaccine work also extends to sexual health, building on our securing of the first commercial license to develop a chlamydia vaccine with pharmaceutical company Merck.

"One of the risks in women is an infection that may lead to ectopic pregnancy or infertility," says Bernard Arulanandam, Professor of Microbiology and Immunology and Assistant Vice President for Research Support, who holds the Jane and Roland Professorship in Biology. "It is the leading bacterial STI on most college campuses and we are trying to identify targets that show promise as potential vaccine candidates," Arulanandam says. "I believe we've made great strides to understand the disease, but still some ways from the development of an effective vaccine for human use."

Chlamydia cases have nearly doubled in the past decade, with more than one million cases reported every year. According to the Centers for Disease Control and Prevention, trachoma, caused by the bacterium *Chlamydia trachomatis*, one of the major types of chlamydia, is actually "the world's leading cause of preventable blindness of infectious origin."

For the Immune Compromised

Associate Professor Floyd L. Wormley, Jr., the College of Sciences Associate Dean for Research, works to develop vaccines to prevent fungal diseases that predominantly affect those with compromised or suppressed immune systems. *Cryptococcus neoformans*, which infects numerous people, including those with HIV/AIDS or organ transplant recipients, is the main focus of his research. *Cryptococcus* causes close to one million cases of meningitis per year, resulting in approximately 625,000 deaths. In fact, recent studies have shown that cryptococcal meningitis is the third leading cause of death for AIDS patients in Sub-Saharan Africa, exceeding the number of deaths due to tuberculosis in this patient population.

Dr. Wormley's research group was able to demonstrate the ability to induce protective immunity against *C. neoformans* infection in immune compromised individuals using an experimental model system; an important milestone in the field and for his team. He is optimistic that they are well on their way to establishing a means to stimulate protective immunity in humans suffering from the disease. "We are trying to find certain proteins to use in these vaccines—and proteins not just for protection against cryptococcal infection, but also against other fungal organisms that can cause significant disease in humans," he says.

Wormley also performs research on *Candida albicans*, which is an opportunistic fungal pathogen that exists as part of the normal flora, but can also cause a range of infections, including oral thrush, vaginal yeast infections, infections of the esophagus and intestines and life-threatening bloodstream infections. *C. albicans* is among the leading causes of death in people who are immune compromised.

"With these vaccines, we need to get to the point where we can determine the true mechanism of protection against these diseases," says Wormley, whose work has been funded by the National Institutes of Health and the Department of Defense.

For the aforementioned vaccines, he envisions the possibility of testing these on humans within the decade, something that would have seemed impossible just a few years ago.

"No one likes to wait but it's about having faith that we're going to do something that will ultimately help change the world," he says. "We have to accept that it is a long-term investment."

But students are already seeing dividends. "Their response to the work has been outstanding," Wormley says. "We give exposure to the work starting even with undergrads. Some see our funding and think we're only interested in working by ourselves in a lab. It's the funding that allows me to teach students the latest techniques, expose them to the latest research they can't get it in a classroom and provide staff training. I have to admit, those students keep me sharp as well."

For example, one graduate student, Camaron Hole, published a paper he co-authored with Wormley and other lab members on *Cryptococcus neoformans* in the journal *Microbiology*. Additionally, Wormley currently has three publications involving students that are soon to be released or at the review stage.

He also sees the value in having students see the passion a professor has for research. "If we don't show them that, we're failing as an institution," Wormley says. "We need to train them through these experiences so they can go off and do great things to serve humanity."

CANCER'S *worst nightmare*

Our professors work on everything from cures to even helping reproduction for survivors.

For associate professor Doug Frantz, he watched three of his uncles on his mother's side all succumb to brain cancer. Each was gone after less than 14 months from diagnosis. "This disease is devastating," he says. "I can't ever forget what it did to them."

Cancer. It's a word that affects practically everyone.

And UTSA is no exception. Researchers on some of our leading projects have lost those close to them—for one, seemingly a whole side of his family. But our school touches more than just surviving, but thriving. Beating this gut-wrenching disease takes dedication, patience and time. As you'll learn, these teams of professors and students have all three.

LIFE AFTER CANCER

"Oncologists are so focused on trying to keep people with cancer alive that they can overlook the other things," says assistant professor Brian Hermann.

Those other things include the ability to have children and has led Hermann and his laboratory group on an odyssey of hope.

"Many people don't realize that radiation and certain types of chemotherapies—such as alkylating agents—can be toxic enough to the testicles that treating cancer can result in permanent infertility..." he says. "And a question many people don't think about is—what does this mean to the young boy who hasn't even reached puberty? Patients undergoing bone marrow transplants for cancers like certain leukemias and even some non-cancerous metabolic disorders, they many times end up unable to have kids."

His research looks at using stem cells to restore sperm production, making it possible that cancer survivors will be able to have children, regardless of the treatments needed to beat cancer. "What few know is that sperm are made from a special kind of stem cell found only in the testicles and, if a patient will receive chemotherapy or radiation treatments that will make them infertile, we could save

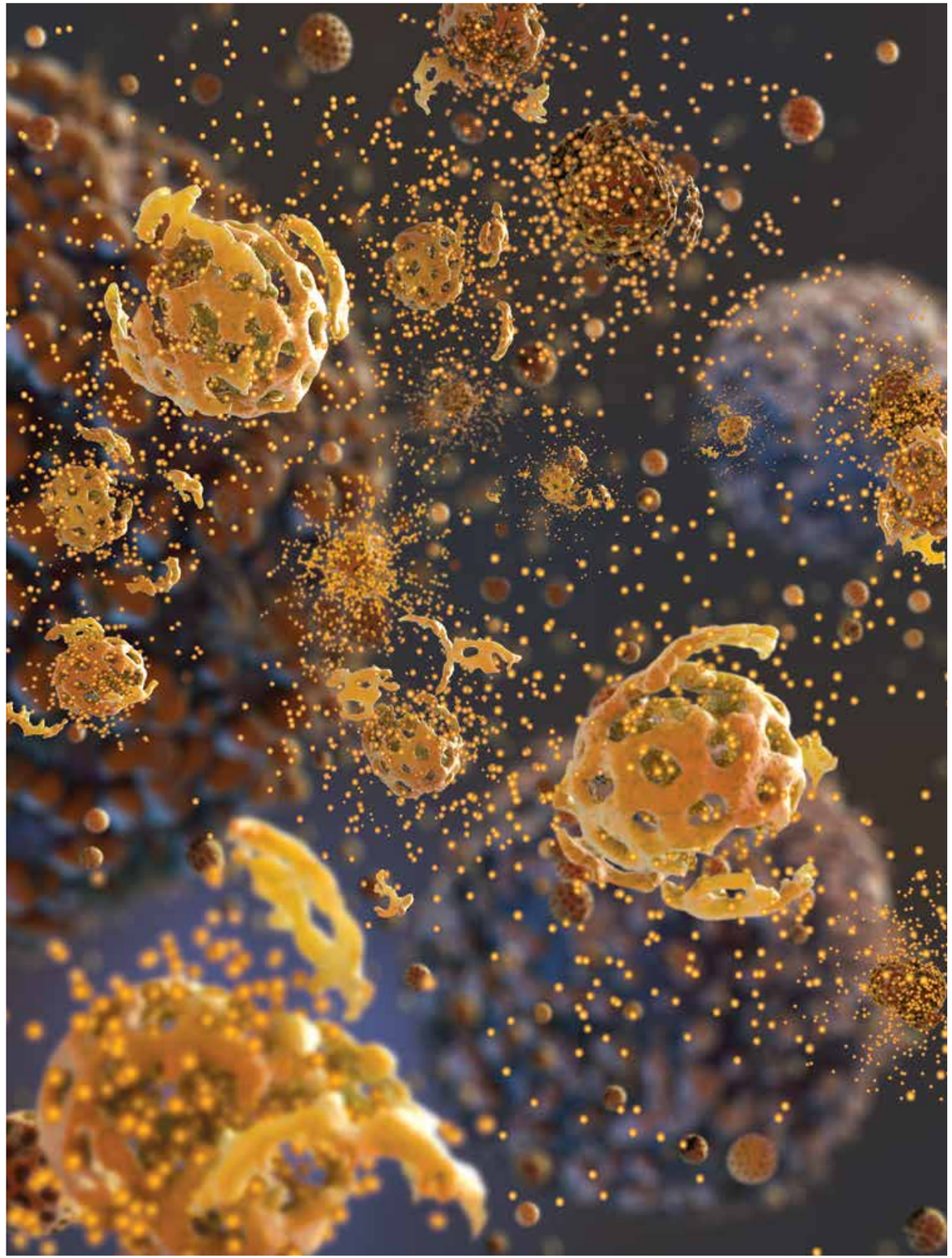


ILLUSTRATION BY STEPHEN DURKE

those stem cells before cancer treatment and transplant them into the testicles later where they will start making sperm again," he says. "The patient can be naturally fertile again."

Hermann and his team are also studying how these spermatogonial stem cells (SSCs) work, how they normally make sperm and whether other types of stem cells could be used to make sperm. The students and staff in Hermann's lab are even investigating whether the testicular stem cells could be spared from being damaged by chemotherapies and radiation. "What if we could prevent infertility in cancer patients altogether?" Hermann says. "We are looking at ways to head off this problem from the very start."

Beyond the physical, Hermann stresses that there is also a psychological aspect to infertility due to cancer. "This is a passionate area for a lot of people who are infertile and desperate to make sure they can have children," he says. "For many, infertility is one of the worst things that can happen. It may destroy their dreams and can have a huge effect on their state of mind. The silver lining is that because childhood cancer patients are surviving like never before, now we have to think about ways to prevent infertility from happening."

In addition to helping cancer patients, this research may benefit patients who become infertile for other reasons. "We're talking to the US Army Institute of Surgical Research about whether our work can help soldiers who have suffered major traumatic injuries to their genital system and are faced with infertility," he says. "If we can we use the same types of technology to make sperm in a Petri dish, our wounded warriors might be able to have children. What we learn from helping infertile cancer patients might help us tackle infertility in other patients, and vice versa."

SHINING A LIGHT

Sometimes it's a simple question which can lead to a complex and compelling result. Dr. Matthew Gdovin found that out through an open exchange of ideas with a student. What resulted has illuminated this associate professor's whole career.

Having spent the past 17 years studying the nervous system as it relates to respiration, it was only last year that his research turned in the unlikely direction of cancer. "I was actually studying the respiratory circuit in brain stems of tadpoles," he says. "It looked at carbon dioxide detection and acid detectors. You hold your breath and it becomes more acidic." His lab would set out to do that with a hydrogen ion, hitting it with a type of UV light.

Then a student of his threw out this hypothesis: "What if you could make it really acidic and it will make the cell commit suicide? Can we make cancer cells kill themselves on the inside?"

"What if you could make it really acidic and it will make the cell commit suicide? Can we make cancer cells kill themselves on the inside?"

It was, Gdovin had to admit, an excellent question.

"Through what we're doing, we can take a nano particle and it would go into the tumor cells," he explains. "If you shine an infrared, it goes three inches through human tissue—like shining a flashlight."

Performing the acid effect in a Petri dish with breast cancer cells, Gdovin says the cells were dead within three hours.

This research gave a chance to shine a light on the young talent at UTSA as well. In fact, three students are on the patent of this work, along with the professor. "It's actually my first patent, too," Gdovin says. "I love that they have that achievement already. Students deserve recognition for great ideas and doing great work. These students were motivated and understood the opportunity this could present to medicine."

Imagine if this could one day replace chemotherapy. As alluded to in Hermann's research, it's not just the disease that affects a patient's life but what's used to treat it. "To even just create something less invasive that could be just as effective..." Gdovin says. "That could make a huge difference."

And the work has made a difference to Gdovin through already seeing his protégés blossom. "The fact students were so involved is part of the joy of it," he says. "You can't underestimate what they can bring to research. Sometimes it takes someone young, someone unaffected, who's just looking at the problem from a new angle. They teach me as much as I teach them."

FOR HIS UNCLES

Many times cancer seems to choose its victims indiscriminately—but, of course, that isn't always the case. For associate professor Doug Frantz, he watched three of his uncles on his mother's side all succumb to brain cancer. Each was gone after less than 14 months from diagnosis. "This disease is devastating," he says. "I can't ever forget what it did to them."

His lab has been devoted to eradicating this form of cancer, Frantz and his students grabbing on to research and trying to push it through. "The current treatments get the bulk of the tumor," he says, "but that *center* of the tumors, that cancer stem cell becomes resistant to radiation and chemotherapy. It comes back. I'm a synthetic organic chemist who spent years at Merck and in university life. I've never had a challenge like this one."

But, Frantz, who is the co-director of the Center for Innovative Drug Discovery with UTSA's Max and Minnie Tomerlin Voelcker Medicinal Chemistry Core Facility, quickly reminds us that a stem cell can just as easily be positive as negative. "It can become a muscle cell, a bone cell—we don't need to kill them, we just need to 'convince' them not to become cancer any more. The life expectancy for brain cancer patients is 14 months. We're trying to identify molecules that can have an effect."

He admits the research is gratifying yet frustrating. "You have to isolate the population of stem cells, get away from the tumor then make sure you know how to keep those cells alive," he says. "And, besides that, test your molecule line! Just learning that is tough. We've had to learn biology ourselves for those of us who are trained in chemistry."

Frantz's work led to him being bestowed the Max and Minnie Tomerlin Voelcker Fund's Young Investigator Award, the first time it was ever awarded to a UTSA researcher.

"A devastating disease like this will take a huge push," he says. "We owe it to everyone who's been touched by someone who's gone through this. It takes away everything. We need to tell brain cancer goodbye."

IRON IT OUT

UTSA clearly seems to have it in for cancer cells. First we tell you we want to kill them with acid and now...iron? Professor Donald Kurtz and his team are focused on their own photochemical cancer therapy to do just that. The treatment is driven by a nano-scale protein scaffold filled with approximately 2,000 iron atoms in its hollow center. The scaffold will bind like Velcro to cancer cells because the peptides, molecules made of amino acids, on its outer shell are recognized specifically by the cancer cells.

"Iron is essential for all cells in the body to function properly and is safe up to certain levels—however, the cells' iron transfer process is highly regulated," Kurtz says. "If we overload cells or tissues with iron, they become toxic. Our goal is to develop a method for delivering iron at toxic levels specifically to cancer cells."

After researchers deliver the iron-loaded scaffold to cancer cells, they will zap the scaffold with tissue-penetrating, near infra-red light. The light treatment will cause the scaffold to release its iron into the cells. The released iron will induce the production of free radicals, which, at sufficiently high levels, will overwhelm the cells' antioxidant capacity, thereby killing the cells. The peptide on the outer shell of the protein scaffold can be varied to target specific types of cancers, such as breast or prostate. "The basic idea is to use light as the trigger to shoot iron out of our protein scaffold and into the cancer cells," said Kurtz. "Think of it as shooting iron bullets to kill cancer."

For Kurtz, who spent many years instructing at the Georgia Institute of Technology, the opportunity to pursue this kind of project has been a different kind of exhilaration. "It's a long road but think about what's on the other side," he says. "There are people waiting for the results we're shooting for. I think we're all driven by a chance to make a real difference in other people's lives."

A STUDENT OF A CANCER LAB —NOW UTSA LECTURER

Hector Aguilar knows just what a student can experience on cancer-related projects at UTSA. He's gone from being a graduate student in Doug Frantz's brain cancer lab to a post doctoral fellow showing other students the way in that very project. It even was a major factor in him becoming a lecturer at UTSA this past school year. We talk with Aguilar about his experience in the lab and its influence.

CATALYST: *What are the best opportunities for students in the lab?*

AGUILAR: It's only as limited as you want it to be. I remember a student (Shane Appel) who was about to go to medical school and wanted to see if he could get a heart cell to live in a Petri dish. I said go ahead. And then he tells me that he and his team did it! I was shocked and impressed! Really this lab wouldn't be anything without our students, going all the way down to undergrad. We want to get them involved and have them be a part of discoveries—not just be a pair of hands.

CATALYST: *What has the experience of the lab done for your career?*

AGUILAR: It's just very exciting to see the strides we've made. We are focused on the goal of what we can do with stem cells. I've had a chance to teach other students because Dr. Frantz encourages these learning opportunities. The joke is that the students have become "my army." I really want to lead them forward.

CATALYST: *It sounds like Dr. Frantz has had a strong influence on you.*

AGUILAR: He's one of the reasons I'm now a teacher. I saw his passion for teaching and it makes you realize the impact you can have—he even asked me if I wanted to be a teaching assistant. He's one of the big reasons so many students want to be a part of the lab. One example of how he helps was when he took many students to Merck and Bristol Myers Squibb so we could have a close-up view of industry.

A Different Kind of FAME

The future of our world is only as promising as the future of the medical profession. In recent years, a nationwide discussion has been taking place about the education of the next generation of physicians with an eye on modernizing their course of study and increasing the benefits of the profession to society. Much of the philosophy of today's medical training has its roots in the 1910 findings of Abraham Flexner in his seminal *Flexner Report* on medical education—clearly, an updated approach is required.

One such conversation is occurring in the form of the Transformation in Medical Education (TIME) Initiative, a multi-institutional endeavor in the UT System.

The College of Sciences is participating in this dialogue by partnering with the University of Texas Health Science Center on FAME (Facilitated Acceptance to Medical Education). This program was devised to not only shorten a doctor's postsecondary education to seven years but also let medical instruction begin from a student's first day at UTSA. FAME actually allows them to simultaneously work on their Bachelor of Science in Biology and Doctor of Medicine, all while being taught by physicians and seeing patients from day one.

The program opened its doors this past school year with 30 students in the inaugural class. While FAME is still in its infancy, the program appears to be attractive to students and their families – in 2013 it received 166 applications and 198 were submitted for the 2014-2015 academic year from students across the state.

"Students will gain enthusiasm in gathering their professional identity," says Hans Heidner, the program's co-director. "This will happen through being put into clinical situations and receiving mentoring from medical students, residents and doctors."

An example of a beneficiary is Kevin Chorath. As a high school student, Chorath was profoundly affected by an encounter with a patient while volunteering at a Veterans Affairs hospital—an experience that solidified his desire to pursue a career in medicine. Also specializing in interventional cardiology, Chorath wants to obtain a master's degree in public health so he can effect positive change in the field of global health policy.

FAME BENEFITS

- Two degrees (Bachelor of Science in Biology and Doctor of Medicine)
- Acceptance to UT Health Science Center San Antonio School of Medicine
- Seven year curriculum (Three years at UT San Antonio + four years at UT Health Science Center San Antonio)
- Honors College membership at UTSA
- Reduced costs associated with obtaining a medical degree
- Early exposure to medical training
- Gateway seminar courses
- Competency-based education
- Personal and professional identity formation
- Mentoring

Breadth of Knowledge

In addition to a new medical school curriculum, the students are participating in a variety of new courses jointly developed and taught by UTSA and UTHSCSA faculty. These courses include content that focuses on clinically related topics. In the capstone "Gateway" courses, students will learn many aspects of patient care, incorporating a multidisciplinary approach that emphasizes the importance of communication, leadership, health economics and social and cultural aspects of patient care.

And some of these abilities are competency-based, not just tied to a grade. Communication is a key emphasis. "We will *test* that our students truly understand how to talk to a patient," Heidner says.

The Future Looks Bright

Still, it isn't just what FAME is but what it hopes to become. "The goal is to eventually incorporate many medical professions into the program, including nursing and dental," he says. "There are unlimited possibilities. We hope to be a part of changing the process and, in that way, help change medicine."

GIVING

The **College of Sciences** is a leader in education and research in the sciences across south Texas.

The combination of research and teaching in the college is the cornerstone of UTSA's efforts to become a premier research university. The people of Texas deserve access to exceptional opportunities that are possible as the college grows and, with investment, UTSA can change the future of science.

Community support allows the college to build research capacity and discovery. Gifts help establish key faculty members who solidify areas of excellence and foster collaboration – and allow us to reach and teach the next generation of scientists. In February 2013, one of our strongest community partners stepped up to the plate with the H-E-B Faculty Research Excellence Fund, a $5 million matching gift that created transformative opportunities for the college.

Alzheimer's Has Another Enemy

The Semmes Foundation is committed to helping researchers study and ultimately find ways to prevent Alzheimer's disease. In 2013, the foundation leveraged a matching gift opportunity to establish an endowed position at UTSA to support the work of renowned Alzheimer's expert, Dr. George Perry. The editor of the *Journal of Alzheimer's Disease*, Dr. Perry is one of the world's most cited researchers of the disease.

After first-hand observation of Dr. Perry's work, the Semmes Foundation invested once again in 2014 to elevate the endowment. This latest gift is now providing an even greater, perpetual source of funding for such research through the Semmes Foundation Distinguished Chair in Neurobiology. "We are pleased with the progress Dr. Perry is making with his research. With the strides being made toward finding answers and potentially a cure, we wanted to increase the impact of our support," says Tom Semmes, president of the Semmes Foundation.

The foundation's latest gift of $500,000 brings the total endowment for supporting Alzheimer's research to $1.5 million—creating additional opportunities for worldwide collaboration and expanded research into the debilitating disease.

As the sixth leading cause of death in America, and with more than 5 million people living with the disease in the United States, the search for answers about Alzheimer's has never been more necessary. Leading researchers, like UTSA's Dr. Perry, are on the verge of breakthrough solutions.

"Not only is Dr. Perry an acknowledged, creative genius in his research field, but he is the dean of seven academic departments with 245 faculty and 5,000 students, and he also collaborates with the best scientists in the world," says foundation trustee Pat Semmes. "We are so honored to support his 30-year passion for looking for answers and are proud to be alongside Dr. Perry in the discovery of a cure for Alzheimer's."

"We are getting closer to understanding fully the sequence of events leading to neuronal oxidative damage and the source of increased oxygen radicals, a critical piece of the Alzheimer's puzzle, says Dr. Perry. "

Through their gifts and involvement, the Semmes Foundation continues the legacy of philanthropic support for education and science established in 1952 by Tom's father, the foundation's founder. "I appreciate the support of the Semmes Foundation because it allows us to move forward with our work. Their gifts are a symbol of what philanthropy is all about," Perry says.

Stepping Up in Geosciences

Linda Hammond, the wife of longtime geology professor Weldon Hammond, who also is former director of the UTSA Center for Water Research and a former naval officer, has honored her husband with a $500,000 distinguished professorship in hydrogeology. A local watercolor artist, Hammond said she couldn't think of a better way to honor Weldon W. Hammond, Jr. after his retirement in 2012, following 34 years with the Department of Geology. Weldon Hammond, a consulting geologist since 1970, currently serves as associate professor emeritus in geological sciences. The water center he led is a research component of the College of Sciences and the College of Engineering.

Linda Hammond said the professorship will focus on issues dealing with groundwater exploration management, including recharge enhancement studies, solid waste site location studies, flooding and mineral exploration and development, which are her husband's forte. "This is an excellent way of 'paying it forward' and just a way to give back to the university in the area of hydrogeology," she said. "In San Antonio and the region, water needs are extremely important, and we certainly need good science behind what we do."

In addition to his academic career, Weldon Hammond also served as a captain in the U.S. Navy in the Persian Gulf during Operation Desert Storm in 1991.

Innovation through Discovery

Not only did a $1 million gift from the Max and Minnie Tomerlin Voelcker Fund establish the Max and Minnie Tomerlin Voelcker Medicinal Chemistry Core Facility in the Center for Innovative Drug Discovery (CIDD), but it also put UTSA over the $100 million mark in its capital campaign.

The focus of the CIDD is to take research findings observed in laboratories and create drugs to treat devastating human diseases and infection. A key component of the center is education. Voelcker Undergraduate Research Fellows give students the unique opportunity to research under leading medicinal chemists in a state-of-the-art facility. Undergraduate and graduate students have conducted research on a range of cancers, regenerative medicine involving stem cell differentiation, diabetes and neurodegenerative diseases such as Alzheimer's and Parkinson's diseases.

The Max and Minnie Tomerlin Voelcker Fund has additionally supported the UTSA College of Sciences through a 2010 Young Investigator Award to Dr. Doug Frantz, and a gift that provided for the recruitment of two faculty members, Dr. Brian Hermann and Dr. Oleg Larionov.

Applying Opportunity

Dan Parman, a San Antonio real estate developer, has committed $1 million to create the Dan Parman Endowed Chair in Applied Mathematics, a highly anticipated position for the advancement of mathematics. "Establishing an endowed chair in applied mathematics enhances UTSA's already excellent math department chaired by Dr. Sandy Norman, while giving the university another tool to educate outstanding students and become a center for major research," said Parman of his gift.

Parman was instrumental in the development of the Stone Oak area, a well known San Antonio community. His philanthropy has extended throughout the city. Says Parman of this applied mathematics chair: "Mathematics is the foundation for all science, the language of all discourse and essential to daily life, whether baking a cake or building a nuclear reactor."

"I am profoundly grateful for the transformational gift of the Dan Parman Endowed Chair in Applied Mathematics. The Chair will allow us to recruit a mathematician who will serve as a leader to both his fellow faculty and the students under his guidance," said Dean George Perry. "The College of Sciences is grateful for partners like Dan who care deeply about the future of our community, whose generosity is propelling us forward in pursuit of Tier One."

Committed to Curing

A $996,000 gift from the Robert J. Kleberg, Jr. and Helen C. Kleberg Foundation is supporting stem cell research by John McCarrey, director of the San Antonio Cellular Therapeutics Institute and the Kleberg Distinguished Chair in Cellular and Molecular Biology at UTSA.

"Stem cells and regenerative medicine offer a novel approach to the treatment of diseases and conditions that touch so many people, such as diabetes, Alzheimer's, Parkinson's and heart disease," said Foundation President Helen Groves. "The Robert and Helen Kleberg Foundation is delighted to support Dr. McCarrey and his team of scientists as they advance their research toward outcomes that can benefit individuals and their families throughout the world."

The Kleberg Foundation is a longtime supporter of the UTSA College of Sciences and has previously made gifts totaling more than $5 million to the university.

Starting a Chemical Reaction

John Feik may have found his success in the pharmaceutical industry—but UTSA is where he found his enthusiasm. He and his wife, Rita, hope to create a similar result for others through a $1 million commitment to create the $2 million Rita and John Feik Distinguished University Chair in Medicinal Chemistry. "We've watched UTSA grow over the years," Feik said. "The opportunity to help bring the university to Tier One is something we'd like to support. Education is a sweet spot for us. We have both lived in San Antonio for the longest part of our lives, and we have a great affinity for San Antonio and its growth. It's been good for us, so we want to help the city in return. Supporting education here is one way to do that."

The money will be used to advance research in the medicinal chemistry field and will strengthen the Department of Chemistry's ability to recruit and retain world-class faculty in drug discovery. "The Feik gift is really a pivotal one for our region and for the state of Texas," said College of Sciences Dean George Perry. "John Feik has been a foundational person for the pharmaceutical industry regionally and internationally."

The gift is a public show of confidence and support for the Department of Chemistry, Perry said, and the person who will eventually hold the endowed chair will be the linchpin of the medicinal chemistry program. "It cements the whole investment we've made over the past several years in medicinal chemistry," Perry added.

"Sciences are the bedrock of future wellbeing and change in our society," Feik said, "I think you need an overall education on top of that, but science allows you to be able to truly identify new ways and new things. The medicinal chemistry chair gets right to the heart of it."

UTSA has launched the first Open Compute Certification and Solution Laboratory in North America with support from the Open Compute Project (OCP) Foundation. UTSA and the Industrial Technology Research Institute in Taiwan are now the first designees in the world with an Open Compute Certification and Solution Laboratory. As the Open Compute Project continues to grow and as its partner community designs and builds more OCP platforms, the laboratories will provide a transparent, community-based approach to address quality assurance and to ensure systems meet their specifications for enterprise production deployment.

"As the neutral third-party responsible for testing the quality of new technologies on behalf of the Open Compute Project, UTSA will have a front-row seat to emerging trends in scalable computing," said **George Perry**, dean of the UTSA College of Sciences. "That insight will create wonderful learning and research opportunities for UTSA students and researchers. It will also nurture partnerships with leaders in the technology industry."

The OCP Foundation is composed of engineers and technology leaders from around the world, dedicated to designing and enabling the delivery of the most efficient server, storage and data center hardware designs for scalable computing. Members include Facebook, Rackspace, AMD, Intel, Avnet, Mellanox and Quanta.

Bernard Arulanandam

Designated by the Department of Defense as a "center of excellence," the Center of Excellence in Infection Genomics (CEIG) is training the next generation of scientists under the leadership of **Bernard Arulanandam**. To increase the pool of students pursuing careers in molecular biology, faculty and graduate students in CEIG are working with two local high schools in community outreach: the Science and Engineering Academy at John Jay High School and Thomas Edison High School.

Some of CEIG's activities through this outreach include course development, lesson planning, assistance with special projects, funding for lab equipment and supplies and hands-on workshops for teachers and students. All of the CEIG PhD Fellows visit the high schools regularly to assist students with laboratory experiments, science fair projects and to teach skills necessary for work in university research laboratories.

Manuel Berriozábal

Manuel Berriozábal, UTSA professor of mathematics, has been named an inaugural fellow of the American Mathematical Society (AMS) for outstanding contributions to the creation, exposition, advancement, communication and utilization of mathematics.

The AMS Fellows program was designed to increase the number of mathematicians recognized by their peers for distinguished contributions to the profession and to honor excellence.

Berriozábal is nationally recognized as the founder of the San Antonio Prefreshman Engineering Program (PREP) in 1979. The four-year, mathematics-based summer program has been replicated throughout Texas as TexPREP and has received more than $40 million in public and private funding and in-kind support. More than 25,000 students have been served through PREP programs; the high school graduation rate among program participants is 99 percent; and the college attendance or college graduation rate is 90 percent.

Berriozábal also serves as founding co-director of Ph.D. PREP, a program to inspire young scientists to pursue doctorates.

Marina Suarez

Marina Suarez, an assistant professor of geology, and her twin sister, who is also a geologist, discovered a dinosaur named Geminiraptor suarezarum in their honor. Suarez uses knowledge of climates in the past to shed light on current and future climate changes.

Three College of Sciences faculty were honored at UTSA's University Excellence Awards. **John Quarles**, assistant professor of computer science, received the President's Distinguished Achievement Award for Research Achievement; **Gail Taylor**, assistant program director of the MBRS-RISE and MARC U*STAR programs, received the President's Distinguished Diversity Award; and **Greg White**, associate professor of computer science, received the President's Distinguished Achievement Award for Excellence in Community Service.

Valerie Sponsel

Valerie Sponsel, professor of biology, was selected as the 2014 recipient of the Ricardo Romo Ph.D. Endowed Professorship. Sponsel is the second professor to be selected for the professorship since it was created in 2009. Dr. Sponsel is a plant biologist whose research focuses on plant hormones that regulate many aspects of plant growth and development – information from this kind of research can be used to improve the growth and productivity of crop plants. The endowment is awarded to professors in the Honors College who exemplify attributes of leadership, service and research.

Arturo Ayon

Arturo Ayon and **Carlos Garcia** have secured NASA funding to build the fourth lab-on-a-robot (LOAR) planetary vehicle. Partnering with HJ Science & Technology, Inc., they have been awarded more than $300,000 for the project. The Rover-like prototype will be designed to conduct on-site planetary compositional analysis.

Using wireless technology, the current LOAR can navigate to a global position location, acquire an air sample, perform the analysis and send the data to a remote station without exposing the analyst to the testing environment. Additionally, it is equipped with a chemical sensor that sits atop a highly integrated mobile platform. The chemical sensor contains a microchip with the capacity to determine the composition of a sample in a few minutes.

"This lab-on-a-robot could lay the groundwork for the next generation of NASA robotic missions by allowing for the analysis of air samples or biological compounds without the threat of danger to a human operator," said Garcia.

Additionally, the LOAR could be used commercially to monitor environmental pollutants that could pose a threat to human health or the environment. Evaluation of samples on-site would provide real-time data analysis and reduce the time and costs associated with conventional laboratory techniques.

Greg White

The Information Systems Security Association (ISSA) has named UTSA Associate Professor **Greg White** and Senior Information Security Analyst **Chip Meadows** among its newest class of Distinguished Fellows. White and Meadows were among seven people nationwide to receive the honor.

White joined UTSA as the technical director of the Center for Infrastructure Assurance and Security (CIAS) in 2001 and became the director in 2005. The CIAS offers cyber security preparedness exercises and training to educate U.S. governments and organizations.

In the UTSA Office of Information Security, Meadows leads the team responsible for securing the perimeter of UTSA networks. He has more than 25 combined years in information technology security, audit and compliance, and information technology spaces and has served in the financial services, academic, military, medical and retail sectors.

ISSA is an international community of cyber security professionals dedicated to advancing the management of technology risk, protecting critical information and infrastructure, and promoting professional growth.

HONORS

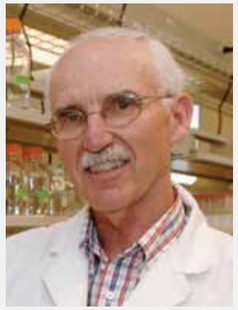
UTSA College of Sciences faculty members **Andrew Tsin**, **Garry Cole** and **Donald Kurtz** were honored at the 2014 Annual Meeting of the American Association for the Advancement of Science (AAAS) in Chicago.

Tsin, a biology professor and director of the UTSA Center for Research and Training in the Sciences, was given the 2013 AAAS Mentor Award for Lifetime Achievement for his efforts in "facilitating dramatic education and research changes at his institution, leading to a significant production of Hispanic American doctorates in the biological sciences."

Andrew Tsin

An internationally recognized biochemist, cell biologist and 2011 AAAS Fellow, Tsin is a leader in science education and training programs and has helped UTSA obtain $68.5 million in grant funding to establish programs aimed at under-represented minorities.

Cole, an internationally known microbiologist specializing in fungal diseases, was



Garry Cole

selected for his distinguished contributions to fungal biology and the pathobiology of coccidioidomycosis, commonly called San Joaquin Valley fever. His broader interests include investigations of virulence mechanisms of medically important fungi. Fungal infections are escalating in people as the number of immune compromised patients continues to increase.

Kurtz, a specialist in bioinorganic chemistry, joined UTSA in 2006 and is the Lutcher Brown Professor in the UTSA Department of Chemistry. He is researching a novel approach to deliver iron at toxic levels to kill cancer cells and tumors (see related story on pg. 12). AAAS honored Kurtz as a Fellow for his creative and insightful contributions to bioinorganic chemistry.

Todd Troyer's News & Views piece in the esteemed international journal *Nature* has been named as the Neuroscience Editors' Choice for 2013. *Nature* is one of the leading journals of peer-reviewed research in all fields of science and technology. *Nature* also provides rapid and insightful news and interpretation of current trends affecting science, scientists and the wider public. Troyer's 2013 piece, *Neuroscience: The Units of a Song*, outlines an important debate in the field of motor coding of birdsong. Dr. Troyer is Associate Professor of Biology and a member of the UTSA Neurosciences Institute. His laboratory uses theory and computation to study the neural basis of how birds learn to sing and how dynamic information is encoded and processed in brain circuits.

Bernard Arulanandam was chosen as one of *VACCINE*'s Council of 100. This group of vaccinology experts, chosen by the Publisher and Editor-in-Chief of *VACCINE*, serve as experts for the journal's editorial board. According to the magazine, duties include performing reviews of articles, suggesting and contributing articles and serving as ambassadors for the journal. *VACCINE* is the official journal of The International Society of Vaccines, The Edward James Society and The Japanese Society of Vaccinology.

John McCarrey is collaborating with experts at Harvard and the Texas Biomedical Research Institute to develop a way to use stem cells from non-human primates to fight disease and treat injuries. He is a professor of biology and Kleberg Distinguished Chair in Cellular and Molecular Biology.

Aaron Cassill

Aaron Cassill was selected as a recipient of the 2013 Piper Professor Award. The award annually recognizes 10 college professors in Texas for their academic, scientific and scholarly achievement. Cassill regularly offers the courses Principles of Molecular Biology, Contemporary Biology, Genetics and the Honors Colloquium, "Science and Psychology of Everyday Life," which he teaches with his wife, psychology professor **Mary McNaughton-Cassill**. He is the director of the STEM Initiative for the College of Sciences and also associate director of the Minority Access to Research Careers and the Minority Biomedical Research Support programs.

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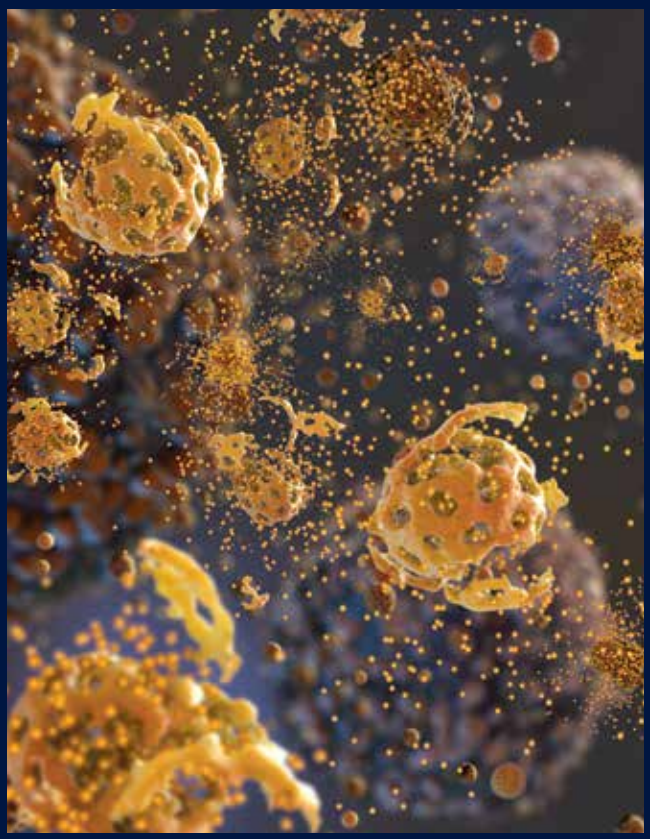

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