

CENTER TIMES

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CAMPUS EDITION

Hospital expansion increases capacity, emergency services, and brain-related efforts

By Nyshicka Jordan

The 12-story third tower at William P. Clements Jr. University Hospital opened in January, furthering UT Southwestern's position as a leading provider of health care and broadening opportunities to integrate research and education with clinical care.

The new wing, designed to fit seamlessly with the existing hospital that opened in 2014, brings the hospital's bed count to about 750, adds operating rooms, and increases the capacity of the emergency department by more than 50 percent. Serving as the new clinical home for the Peter O'Donnell Jr. Brain Institute, the tower includes specialty units for

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The expansion of William P. Clements Jr. University Hospital increased the hospital's bed count, added operating rooms, and enhanced capacity of the emergency department.

UTSW broadens COVID-19 prevention efforts as state vaccination hub

By Patrick Wascovich

UT Southwestern successfully launched a phased rollout of COVID-19 vaccinations for employees, patients, and the public following emergency use authorization for the first vaccines from the U.S. Food and Drug Administration.

Thousands of UT Southwestern front-line health care workers, employees, and students received initial doses of the Pfizer-BioNTech and Moderna vaccines starting in mid-December. Beginning in early January, vaccinations were given to patients 65 and older or those 16 and older who have at least one underlying condition.

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Jana Smith, a Registered Vascular Sonographer who conducts ultrasound imaging, was the first UT Southwestern employee to receive the vaccine on Dec. 15.

A record year for NIH funding

By Patrick Wascovich

UT Southwestern secured record funding from the National Institutes of Health (NIH) in fiscal year 2020, in both the number of grants and the total level of funding. In all, 153 grants representing current and future support of more than \$253.26 million were approved in the last fiscal year, which ended Aug. 31.

That's a 17 percent jump in the number of approved NIH grants to UTSW scientists from the previous fiscal year and a 6.8 percent increase in the funding established in the past cycle and continuing through the span of multiyear awards.

"This significant increase in NIH funding is a testament to the high quality of research

done at UT Southwestern and a strong indication that our faculty members are held in high esteem by their peers who review grant applications," said Dr. David Russell, Vice Provost and Dean of Research.

Funding in the latest fiscal year includes support to develop interventions to improve outcomes for substance use disorders; investigate the causes of a childhood cancer called Ewing sarcoma; uncover the circuits in the brain that contribute to the beneficial metabolic effects of exercise; and better understand the processes regulating cellular differentiation.

Active NIH investigations on campus total 630, supported by more than \$228.38 million received last fiscal year alone.

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Tu honored as rising star in Texas research

UT Southwestern scientist wins Edith and Peter O'Donnell Award in Science from TAMEST

By Carol Marie Cropper

Dr. Benjamin Tu, Professor of Biochemistry, has been selected to receive the 2021 Edith and Peter O'Donnell Award in Science, presented by The Academy of Medicine, Engineering and Science of Texas (TAMEST), for his research on how metabolites control cell growth and other important cell functions.

TAMEST announced the annual awards that recognize the achievements of early career Texas investigators in the fields of science, medicine, engineering, and technology innovation at a Jan. 11-13 virtual conference. Each award comes with a \$25,000

honorarium and an invitation to make a presentation before TAMEST members. Dr. Tu made his virtual presentation Feb. 24.

"It's an honor to be selected," Dr. Tu said of the prize. "It was certainly welcome news during very challenging times."

Dr. Tu is the 15th award recipient from UT Southwestern since TAMEST's O'Donnell Awards were first given in 2006. His research focuses on how metabolism regulates cellular functions. While he conducts basic science research, two of his recent areas of investigation have obvious potential for future advances in clinical treatment, specifically in



Dr. Benjamin Tu

cancer research.

"We believe Dr. Tu's research will lead to future therapeutic advancements for diseases," said Dr. David E. Daniel, TAMEST Board President. "As

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School of Health Professions sets graduation record



Morgan Gizzi celebrates earning her Master of Prosthetics-Orthotics as one of 140 graduates from UT Southwestern's School of Health Professions. Due to the pandemic, a virtual commencement ceremony took place in December to recognize the new group of health care professionals graduating from six academic programs. See more photos on page 7.

Scientists identify key gene that rids cells of viruses in cellular recycling process

By Christen Brownlee

A team led by UT Southwestern researchers has identified a key gene necessary for cells to consume and destroy viruses. The findings, reported in *Nature*, could lead to ways to manipulate this process to improve the immune system's ability to combat viral infections, such as those fueling the ongoing COVID-19 pandemic.

Scientists have long known that cells use a process called autophagy to rid themselves of unwanted material. Autophagy, which translates as "self-eating," involves isolating cellular garbage in double-layered vesicles called autophagosomes, which are then fused with single-layered vesicles known as lysosomes to degrade the materials inside and recycle them into building blocks for other uses.

This process helps cells discard old or defective organelles and protein complexes, bacteria, and viral invaders. For a variety of cellular refuse tasks, researchers have identified clear pathways by which cells initiate and regulate autophagy. But it's been unclear to date, said Dr. Xiaonan Dong, Assistant Professor of Internal Medicine and study lead author, whether a unique pathway specifically

targeted viruses for autophagy.

In this latest research, Dr. Dong and his colleagues manipulated human cells infected by different viruses to individually deplete more than 18,000 different genes, examining their effects on autophagy. As their initial models, the researchers infected cells with herpes simplex virus type 1 (HSV-1), which causes cold sores and sexually transmitted infections, and Sindbis virus, which causes a mosquito-borne illness.

The team's investigation identified 216 genes that appear to play a role in viral autophagy. To narrow their search to the key players, the researchers used bioinformatics to analyze biological processes these genes regulate. They quickly honed in on a gene called *sorting nexin 5 (SNX5)*, which produces a protein that helps recycle plasma membrane-anchored proteins from endosomes, sorting organelles in cells that often ferry materials isolated outside cells into their interior. Because viruses often enter cells through this pathway, the team reasoned, SNX5 could be important for their autophagy.

When the scientists shut down SNX5 in human cells, the cells' ability to perform autophagy on

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Combination drug therapy offers hope against methamphetamine addiction

By Carol Marie Cropper

A new treatment that combines two existing medications may provide long-sought relief for many battling debilitating methamphetamine use disorder, according to a study published recently in the *New England Journal of Medicine*.

The article, based on a multi-site study funded by the National Institutes of Health (NIH), describes how combining an injectable drug currently used to treat alcohol and opioid addictions (naltrexone) and a commonly prescribed antidepressant (bupropion) produced positive results in 13.6 percent of the 403 patients treated, significantly higher than the 2.5 percent response in placebo groups. This is an important advance given that there are now no effective treatments for methamphetamine use disorder, said Dr. Madhukar Trivedi, Professor of Psychiatry and first author of the study.

"It's unbelievably exciting that we have the first-ever positive treatment results for this addiction," Dr. Trivedi said. "The medical field has not been able to find a treatment for people suffering from meth use disorder."

Since both drugs are already approved by the Food and Drug Administration for other purposes, clinicians can immediately start using them to treat patients suffering from addiction to the stimulant methamphetamine, he added.

Almost 1.9 million Americans reported using methamphetamines in 2018, according to a report the following year from the Centers for Disease Control and Prevention (CDC). Deaths involving psychostim-



Dr. Madhukar Trivedi

ulants such as methamphetamine and cocaine have increased sharply since 2012, with more than 10,000 people dying of drug overdoses involving psychostimulants with abuse potential in 2017, according to the same CDC report.

Even when not fatal, "methamphetamine use disorder really disrupts people's lives in many different ways," said Dr. Trivedi, also Principal Investigator of the Big South-West Node of the National Institute on Drug Abuse-funded Center for Clinical Trials Network and the founding Director of UT Southwestern's Center for Depression Research and Clinical Care.

Stimulant use can also lead to high blood pressure and increased heart rate, resulting in heart attack and organ failure. Use of stimulants like methamphetamine is also associated with sleeplessness, impaired judgment, and aggressive, impulsive behavior, he added, leading to lost jobs and severed family and social connections. Over time, it can also damage neurons in the brain.

The new study "creates hope for this population and a viable pharmacological treatment option," Dr. Trivedi said.

Aware that each medication had

been used by itself to try to treat these patients, Dr. Trivedi came up with the idea of combining the two drugs about six years ago. In the study, participants were given 380 milligrams of naltrexone every three weeks and 450 milligrams of extended-release bupropion daily.

During the adaptive double-blind, placebo-controlled study – conducted at UT Southwestern, Columbia University, UCLA, Duke University School of Medicine, and four other institutions – adults with moderate or severe methamphetamine use disorder who had expressed a desire to reduce or stop using meth were assigned to receive either the drug treatment combination or a placebo for six weeks.

In a second stage, 225 participants who did not respond when given the placebo were reenrolled for a second six weeks in an effort to lessen the effect of false reactions. A positive treatment response was defined as having three out of four urine samples test negative for methamphetamine.

Combining results from the two stages of the study, the weighted average response rate was 13.6 percent for those receiving the medications versus 2.5 percent in the placebo group. That means there was a treatment effect of 11.1 percent once the placebo effect is accounted for, according to the study.

Those given the medication combination also reported less craving for methamphetamines than those given a placebo. Adverse effects of the therapy were mostly mild or moderate and included nausea (in about a third of those receiving the treatment), tremors (4.6 percent), malaise (3.7 percent), excessive sweating (7.3 percent), and

decreased appetite (7.3 percent).

Dr. Trivedi said a logical next step would be to assess the effectiveness of the treatment when used in a traditional clinical setting.

Funding for the study came from the NIH's National Institute on Drug Abuse and the Department of Health and Human Services. Alkermes, a pharmaceutical company based in Dublin, Ireland, donated the naltrexone and the placebo used in the study. Dr. Trivedi is a consultant for Alkermes.

Other UT Southwestern researchers participating in the study were Dr. Robrina Walker, Associate Professor of Psychiatry; Dr. Adriane dela Cruz, Assistant Professor of Psychiatry; Dr. Thomas Carmody, Professor of Population and Data Sciences, and Psychiatry; and Dr. Sidarth Wakhlu, Professor of Psychiatry.

Researchers from Emmes, in Rockville, Md.; the National Institute on Drug Abuse Center for Clinical Trials Network, also in Rockville; the San Francisco Department of Public Health; University of California San Francisco; University of Texas Health Science Center at Houston; CODA Inc., of Portland; Hennepin Healthcare at the University of Minnesota, in Minneapolis; Medical University of South Carolina, in Charleston; Duke-National University of Singapore Medical School; and Texas Tech University also participated.

Dr. Trivedi holds the Betty Jo Hay Distinguished Chair in Mental Health, and the Julie K. Hersh Chair for Depression Research and Clinical Care.

Funding Continued from page 1

These grants support preeminent researchers like Dr. Philipp Scherer, Director of the Touchstone Center for Diabetes Research, who is the Principal Investigator or primary faculty member for eight active NIH investigations, and Drs. Margaret Phillips and Gaudenz Danuser, both of whom have seven ongoing multiyear projects in play. Dr. Phillips is Chair of the Department of Biochemistry and Dr. Danuser is Chair of the Lyda Hill Department of Bioinformatics.

Here is a look at some of the top awards secured by UT Southwestern investigators in FY 2020:

Substance use disorders

Dr. Madhukar Trivedi, Chief of the Division of Mood Disorders in the Department of Psychiatry, received a \$13.12 million Clinical Trials Network Node Grant to investigate novel interventions to improve outcomes for substance use disorders. The five-year grant includes funding for UTSW to coordinate three large multicenter treatment studies that include two pharmacological approaches and one transcranial magnetic stimulation study to assess efficacy for cocaine and methamphetamine use disorders. Substance abuse, particularly the use of stimulants and opioids in the fourth wave of the opioid epidemic, has been identified as a major public health problem.

"Research is needed to not only develop new treatments, but also to determine how to best broadly disseminate the treatments that are currently available and effective," said Dr. Trivedi, a Professor of Psychiatry who has received continuous federal funding for the Clinical Trials Network Node since 2005.

Ewing sarcoma

Dr. David McFadden, Assistant Professor of Internal Medicine, a member of the Harold C. Simmons Comprehensive Cancer Center, and a 2004 UTSW Medical School graduate, received a \$10 million grant that provides five years of support to a collaborative team of UTSW scientists. The researchers will study the protein EWSR1-FLI1, which is thought to be the cause of Ewing sarcoma. This childhood cancer occurs in bones or in the soft tissue around the bones.

The grant will fund three research proj-



Dr. Ondine Cleaver, Professor of Molecular Biology, secured three NIH grants totaling \$4.99 million to support investigations aimed at discovering the fundamental processes by which cells are specialized to form organs and tissues.

ects including support for three core facilities – high throughput screening, chemistry, and preclinical pharmacology – on campus focused on understanding how EWSR1-FLI1 promotes uncontrolled growth of Ewing sarcoma cells, and identifying and developing strategies to impair the function of the protein in cancer.

"Funding from the NIH Cancer Moonshot Initiative has not only been a key source of funding for the proposed research efforts, but also made possible bringing together the exceptional team of research project and core facility leaders to apply their scientific expertise to this challenging childhood cancer," said Dr. McFadden, who earned both his M.D. and Ph.D. degrees in 2004 through UT Southwestern's acclaimed Medical Scientist Training Program.

The brain and metabolism

Dr. Joel Elmquist, founding Director of the Center for Hypothalamic Research and a Professor of Internal Medicine, is Principal Investigator for a five-year project funded by the NIH's National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK). The \$9.78 million effort revolves around how exercise-induced

brain activity leads to changes in metabolism and body composition, particularly poorly understood cellular mechanisms and the neural circuits underlying these responses.

A multidisciplinary team of researchers will examine the brain's role in metabolism, appetite, and physical endurance. The team includes project leaders Drs. Jeffrey Zigman, Kevin Williams, and Elmquist from UTSW and Dr. Nick Betley (University of Pennsylvania). Drs. Laurent Gautron and Syann Lee from UTSW and Dr. David Wasserman (Vanderbilt University) will be core directors. Dr. Zigman is Professor of Internal Medicine and Psychiatry, Dr. Williams is Associate Professor of Internal Medicine, and Drs. Gautron and Lee are Assistant Professors of Internal Medicine.

"One basic question we are asking is, 'Why does exercise training improve metabolism but yet exercise alone is not an efficient weight loss strategy?' Our team believes that understanding the underlying mechanisms will lead to improved strategies to target circuit mechanisms and, ultimately, new treatments for conditions such as obesity and diabetes," Dr. Elmquist said.

Cellular signaling

Dr. Ondine Cleaver, Professor of Molecular Biology, secured three grants totaling \$4.99 million to support investigations aimed at discovering the fundamental processes by which cells are specialized to form organs and tissues. In multicellular organisms, differentiation of tissue-specific cell types occurs during development as it changes from a simple zygote to a complex system of tissues, organs, and cell types. The four-year projects collectively will investigate the genes and proteins that signal cells to become either a blood vessel, a pancreas, or a kidney.

"This will help us develop replacement and regeneration approaches to help patients with diseased organs," said Dr. Cleaver, who leads the Genetics, Development and Disease Graduate Program. "NIH support is the lifeblood of our work. It is essential for us to hire amazing trainees and scientists that carry out the work and make discoveries, but it also helps us network with others in our field to exchange ideas and advance science."

Dr. Danuser holds the Patrick E. Haggerty Distinguished Chair in Basic Biomedical Science.

Dr. Elmquist holds the Carl H. Westcott Distinguished Chair in Medical Research, and the Maclin Family Distinguished Professorship in Medical Science, in Honor of Dr. Roy A. Brinkley.

Dr. Phillips holds The Sam G. Winstead and F. Andrew Bell Distinguished Chair in Biochemistry.

Dr. Russell holds the Eugene McDermott Distinguished Chair in Molecular Genetics.

Dr. Scherer holds the Gifford O. Touchstone, Jr. and Randolph G. Touchstone Distinguished Chair in Diabetes Research, and the Touchstone/West Distinguished Chair in Diabetes Research.

See the endowed titles held by Dr. Trivedi above.

Dr. Zigman holds the Kent and Jodi Foster Distinguished Chair in Endocrinology, in Honor of Daniel Foster, M.D.; the Mr. and Mrs. Bruce G. Brookshire Professorship in Medicine; and The Diana and Richard C. Strauss Professorship in Biomedical Research.

More online: Read the full story on *Center Times Plus* at utsouthwestern.edu/ctplus.

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Clinical Informatics Center brings power of big data to patient care



By Patrick McGee

Dr. Richard Medford's first experience with clinical informatics came as an undergraduate in Canada when he hustled to build a database from paper records of patients who had been screened for SARS during a 2003 outbreak of the virus.

Now an Assistant Professor of Internal Medicine in the Division of Infectious Diseases and Geographic Medicine at UT Southwestern, Dr. Medford is working with colleagues to use advanced computational modeling to track the spread of COVID-19, to bring greater scrutiny to COVID tests, and to model disease risk in North Texas.

Harnessing the power of computing and big data to improve patient care and advance medical research is the work of UT Southwestern's newly established Clinical Informatics Center. Dr. Christoph Lehmann, Director of the Center, is leading efforts on campus to develop, implement, and evaluate clinical informatics solutions for health care providers and their patients. Plans for a master's degree program in health informatics have been approved (see related story on this page) and UT Southwestern also intends to establish a fellowship program.

Dr. Lehmann, Professor of Pediatrics, Population and Data Sciences, and in the Lyda Hill Department of Bioinformatics, came to UT Southwestern in 2019 with a wealth of experience in the field. As editor of the journal *Applied Clinical Informatics*, he has published hundreds of papers on clinical informatics, and he co-edited the 2009 book *Pediatric Informatics: Computer Applications in Child Health*.

The German-born and educated

physician completed his fellowship in neonatology and applied clinical informatics at Johns Hopkins University, where he later served as Director for Clinical Information Technology at the Johns Hopkins Children's Center. He then went to Vanderbilt University, where he served as a Professor of Biomedical Informatics and Pediatrics and Director of the Clinical Informatics Fellowship Program.

Dr. Lehmann established the clinical informatics board certification process for the American Board of Preventive Medicine and led the effort to write the first board certification exams in the field. He also determined the requirements and milestones for the first clinical informatics fellowships and established and directed the Child Health Informatics Center at the American Academy of Pediatrics.

UT Southwestern is also developing a Clinical Informatics Fellowship under Dr. Lehmann's leadership that will be available to a physician who is board-certified or eligible in a primary specialty.

Without an established clinical informatics program in place at UT Southwestern when Dr. Lehmann arrived, he didn't expect to see much work in the field underway. Instead, he found faculty diving into their own substantive clinical informatics projects across campus.

Dr. Lehmann has brought together many informaticians, including 17 UTSW faculty members certified in clinical informatics, to assist in the



Dr. Christoph Lehmann



Dr. Richard Medford

fellowship and master's programs, including Dr. Medford, who was a clinical informatics fellow at Stanford University in 2018. Dr. Medford is now Associate Chief Medical Informatics Officer, Associate Fellowship Director, and a member of the Clinical Informatics Center. At UT Southwestern, Dr. Medford said he has encountered more physicians who are board-certified in clinical informatics than he found at Stanford.

This year, he teamed up with Dr. Mujeeb Basit, an Assistant Professor of Internal Medicine in the Division of Cardiology and Associate Director of the Clinical Informatics Center, who is accomplished in leveraging finite-state machines, which are mathematical models of computation for sequential logic. Dr. Basit's framework of finite-state machines, previously used to track heart attacks and sepsis, was redesigned for COVID-19 and implemented into the electronic health record system. Among other things, finite-state machines aid clinicians in interpreting test results, predicting timing of interventions, and modeling disease risk. They also improve patient screening, elevate efficient reporting to government agencies, and enable

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acute stroke care, epilepsy monitoring, and specialized psychiatric services.

"The expansion marks an exciting chapter in our history demonstrating our continuing commitment to the health of North Texans. Now more than ever, the addition of nearly 300 beds to serve the ever-increasing number of patients who come to UT Southwestern is critically important. The opening of the third tower better positions us to improve the exceptional care we are known for, especially as we continue to respond to the COVID-19 pandemic," said Dr. Daniel K. Podolsky, President of UT Southwestern.

The same principles that guided the development of Clements University Hospital were also employed in the new tower, with every aspect of design intended to enable caregivers to provide exceptional care.

"Clements University Hospital, including the third tower expansion, was conceived and developed using a patient-centered, thoughtful design bolstered by the most advanced technology, research, and training available today," said Dr. John Warner, Executive Vice President for Health System Affairs.

Surgical areas in the third tower provide a team-based clinical environment with technologies coalescing

around the patient. Features include 19 new operating rooms, three angiography suites, as well as intraoperative MRI, Gamma Knife, and high intensity focused ultrasound (HIFU) technologies that enable physicians to utilize a noninvasive method to treat tumors and other diseases typically treated with radiation or surgery.

A priority for planners was designing a facility that allows clinicians to quickly respond to critical conditions such as stroke. Designers created an environment that thoughtfully places care units adjacent to support areas. For example, a new helipad is steps away from the entrance to the angio suite, where patients receive time-sensitive interventional care. Similarly, the neuro intensive care unit is on the same floor as the angio suite so that patients can be quickly transferred to the neuro-ICU after receiving emergency care.

"Time is of the essence when clinicians are making treatment decisions for emergency patients. Through the use of co-location strategies, UT Southwestern brings together multidisciplinary teams to offer the most advanced neurosurgical and neuroendovascular care in a single space," Dr. Warner said.

In fact, the numerous specialty care units make the new addition

exceptional. The third tower includes an epilepsy monitoring unit (EMU) designed to enhance patient safety while giving specialists access to the latest research tools. A central command center allows clinicians to observe patients' brain activity or seizures in real time. Rooms are also uniquely outfitted with harnesses suspended from the ceiling to help patients independently move around their rooms with less risk of falling.

The psychiatric unit, formerly at Zale Lipshy Pavilion, has been expanded at Clements University Hospital. The larger unit is able to treat more complex psychiatric conditions, with 23 private patient rooms. The additional space also includes outpatient services, such as group therapy centered around specialized psychiatric offerings. The unit takes a holistic approach to treating mental health, featuring 5,000 square feet of outdoor space and a wellness garden designed to provide a positive-care environment and recreation.

Additionally, new features and modern tools help advance the institution's research efforts by fostering close relationships between researchers and physicians and allowing them to explore new therapies and study evidence-based practices together.

"Research lies at the heart of the care we deliver, and the addition includes dedicated space for our

UTSW to launch Master of Science in Health Informatics program this summer

By Patrick McGee

UT Southwestern will commence a Master of Science in Health Informatics degree program in mid-August, offering training in the field that applies the power of big data to health care.

The program will be part of UT Southwestern's Graduate School of Biomedical Sciences and will be open to nurses, physicians, and health care providers as well as students and professionals with backgrounds in data science, information technology, and computer science. The classroom-based program will have options for pursuing the degree full or part time. A bachelor's degree is the only requirement to apply, and people with degrees outside the traditional fields of science, technology, engineering, and math are invited to apply as well.

Health informatics jobs are expected to grow by 8 percent from 2019 to 2029, according to the Bureau of Labor Statistics. The master's program at UTSW was created at the request of Dr. W. P. Andrew Lee, Executive Vice President for Academic Affairs, Provost, and Dean of UT Southwestern Medical School. The program was approved by the Texas Higher Education Coordinating Board in December.

Instructors will include UT Southwestern physicians and research faculty who are leaders and experts in health informatics, including Dr. Christoph Lehmann, Director of the newly established Clinical Informatics Center and a leader in the field. The curriculum will focus on leveraging data to develop knowledge and innovation with the goal of improving care processes and patient well-being.

As data science emerges as a new field in almost every industry, the program will offer instruction by leading experts who have published in some of the top journals in science, medicine, and data analysis. Graduates of the Master of Science in Health Informatics program will bring much needed skills to health care as electronic records become more important in patient care and scientists turn more to data to advance medical research, Dr. Lehmann said.

"The goal of this master's program is to create a workforce that is capable of modifying, improving, maintaining, and optimizing electronic health records and other information technology systems that we use in medicine with the ultimate goal of better care for all," Dr. Lehmann said.

Dr. Lee holds the Atticus James Gill, M.D. Chair in Medical Science. Dr. Lehmann holds the Willis C. Maddrey, M.D. Distinguished Professorship in Clinical Science.

closer tracking of COVID-19 patients through the health system.

"That really drives the entire COVID-19 workflow across our enterprise," Dr. Medford said.

It was so effective that it was adopted by Epic, the company that developed the electronic health record system used at UT Southwestern and at many other large hospital systems in the U.S.

This is an example of clinical informatics making a real difference, and Dr. Lehmann's mission is to enable

more successes like this.

A new generation of clinical informatics experts is needed to build infrastructure to advance care and research. One goal of the field is to build artificial intelligence into electronic health records to complete important tasks in the background so health care providers can focus on duties that require human expertise.

See the endowed title held by Dr. Lehmann above.



Cutting a ribbon to celebrate the official opening of the hospital's new wing is Becky McCulley, VP of Clinical Programming and Facility Development, joined by (from left): Thea Vanderhill, Assistant VP of Clinical Design and Transition Planning; Dr. John Warner; Dr. Daniel K. Podolsky; and Robert Nickerson, Director of Major Capital Improvement Projects.

clinical research staff to work. This supports a key UT Southwestern mission, which is to integrate our clinical research with patient care," said Chris Rubio, Associate Vice President and Chief Operating Officer, University Hospital.

Furthermore, the addition provides an increasingly rich learning environment for trainees as well as new employment opportunities. By January, more than 250 jobs were added to support additional services. That figure is expected to rise to 750 by the end of 2021, and the projection currently provides for 1,000 new positions in all, according to Mark Meyer, Chief Financial Officer.

Clements University Hospital was built with the idea that it would be expanded in 10 to 15 years, but growing demand for care at UT South-

western moved up the timeline.

"This expansion has enabled us to continue advancing on our mission and to provide exceptional experiences for our patients and their families. I am grateful for the efforts of so many of our staff, and our community, for making this possible," Dr. Warner said.

Dr. Podolsky holds the Philip O'Bryan Montgomery, Jr., M.D. Distinguished Presidential Chair in Academic Administration, and the Doris and Bryan Wildenthal Distinguished Chair in Medical Science.

Dr. Warner holds the Jim and Norma Smith Distinguished Chair for Interventional Cardiology and the Nancy and Jeremy Halbreich, Susan and Theodore Strauss Professorship in Cardiology.

Study shows women less likely to survive out-of-hospital cardiac arrest than men

By Lori Sundeen Soderbergh

A study of patients resuscitated from out-of-hospital cardiac arrest shows that women have a lower likelihood of survival compared with men and are less likely to receive procedures commonly administered following cardiac arrest.

The UT Southwestern-led multicenter study, published in *Circulation*, revealed that the percentage of patients who survived to hospital discharge was significantly lower among women (22.5 percent) than men (36.3 percent). About 300,000 people suffer cardiac arrests outside of a hospital setting each year in the U.S.

“Our work points to new directions in how we can work to improve survival in women,” said Dr. Ahamed Idris, a Professor of Emergency Medicine and Internal Medicine at UT Southwestern who practices at Parkland Memorial Hospital. “Why are emergency interventions different with women than with men?”

This study draws upon data from two clinical trials and a cardiac arrest registry conducted by the Resuscitation Outcomes Consortium (ROC), an initiative of the National Institutes of Health and the U.S. Department of Defense. The trials included patients



at 10 sites in the U.S. and Canada during 2010-2015.

Among 4,875 successfully resuscitated patients in the study, 37.4 percent were women and 62.6 percent were men. The men were slightly younger, with an average age of 65 versus 67 for the women.

According to Dr. Idris, there are two treatments available for cardiac arrest following a successful resuscitation: therapeutic hypothermia (cooling a person's body to a temperature that is lower than normal) and coronary angiography, which is used to examine arteries to the heart and open them to blood flow. The study documents that women receive

hypothermia 35 percent of the time compared with 44 percent for men. With coronary angiography, women receive this treatment 14 percent of the time compared with 30 percent for men.

Other results showed women were 6 percent less likely to receive cardiopulmonary resuscitation (CPR) from a bystander and fewer of them had cardiac arrests that were witnessed or had shockable rhythm versus data on the men. Men are more likely to suffer cardiac arrest in public, Dr. Idris said, resulting in a quicker call to 911 from a witness and doubling their chance of survival.

“Now we need insight into whether



Dr. Ahamed Idris



Dr. Ambarish Pandey



Dr. Purav Mody

these outcomes may be driven by what happens in the hospital. We have a long way to go in providing gender equity in treatment,” said Dr. Ambarish Pandey, Assistant Professor of Internal Medicine and a 2017 alumnus of the UT Southwestern Graduate School of Biomedical Sciences.

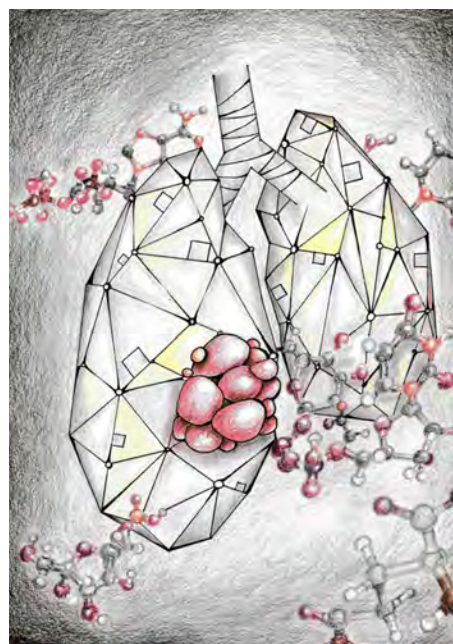
Dallas-Fort Worth was the largest U.S. site in the ROC, with 36 hospitals and 22 emergency medicine agencies involved across Dallas, Collin, and Tarrant counties, including both UT Southwestern and Parkland Memorial Hospital. While the original Resuscitation Outcomes Consortium was discontinued in 2016, the Dallas-Fort Worth branch, the Center for Resuscitation Research, continues to be maintained with studies ongoing by Dr. Idris, who is

Director of Emergency Medicine Research in the Department of Emergency Medicine at UT Southwestern.

“Were the women sicker or was there a difference in care?” asked Dr. Purav Mody, Assistant Professor of Internal Medicine at UT Southwestern. “Our study demonstrates the existence of gender disparities in post-resuscitation care and highlights the need for future research focused on decision-making and care being provided in the post-resuscitation phase in order to narrow gender-based differences in cardiac arrest outcomes.”

More online: Read the full story on *Center Times Plus* at utsouthwestern.edu/ctplus.

Researchers uncover a potential treatment for an aggressive form of lung cancer



The image depicts a non-small cell lung cancer tumor surrounded by metabolites involved in the hexosamine biosynthesis pathway. Credit: Elizabeth Lieu

By Katie Regan

Researchers at the Children's Medical Center Research Institute at UT Southwestern (CRI) have discovered a new metabolic vulnerability in a highly aggressive form of non-small cell lung cancer (NSCLC). These findings could pave the way for new treatments for patients with mutations in two key genes – *KRAS* and *LKB1*. Patients whose tumors contain both of these mutations, known as KL tumors, have poor outcomes and usually do not respond to immunotherapy.

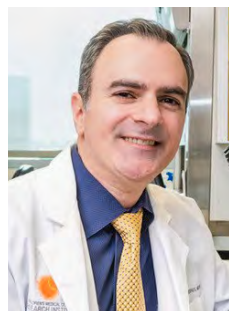
“We used to think that most tumors rely on the same handful of metabolic pathways to grow, but we've learned over the last decade that this is an oversimplification. Instead, different tumor subclasses have particular metabolic needs arising from mutations in key genes. Understanding how specific combinations of mutations promote tumor growth and metastasis may allow us to design tailored therapies for patients,” said Dr. Ralph DeBerardinis, a Professor at CRI at UT Southwestern and a Howard Hughes Medical Institute Investigator.

While mutations in either *KRAS* or *LKB1* can alter metabolism individually, less is known about the metabolic needs when both genes are mutated

in the same tumor. To uncover new metabolic vulnerabilities, the scientists compared metabolic properties of KL tumors genetically engineered in mice to tumors containing different mutations and to the normal lung. In the study, published recently in *Nature Metabolism*, they discovered that the hexosamine biosynthesis pathway (HBP) is activated in KL tumors. These findings were consistent with previous research in the DeBerardinis lab that showed KL cells reprogram carbon and nitrogen metabolism in ways that promote their growth but increase their sensitivity to particular metabolic inhibitors.

The HBP allows cells to modify proteins through a process called glycosylation, which facilitates protein trafficking and secretion. The high rate of protein production that fuels KL tumor growth is thought to require activation of the HBP. In order to develop ways to inhibit the HBP, the researchers next identified the enzyme GFPT2 as a key liability in KL tumors. Genetically silencing or chemically inhibiting this enzyme suppressed KL tumor growth in mice, but had little effect on the growth of tumors containing only the *KRAS* mutation. Altogether, the findings indicate the selective importance of the HBP in KL tumors and suggest that GFPT2 could be a useful target for this aggressive subtype of NSCLC.

Dr. DeBerardinis is a Professor of Pediatrics at UT Southwestern, where he is Chief of the Division of Pediatric Genetics and Metabolism. He is also affiliated with the Eugene McDermott Center for Human Growth and Development and the Harold C. Simmons Comprehensive Cancer Center at UT Southwestern. At CRI at UT Southwestern, Dr. DeBerardinis is the Director of the Genetic and Metabolic Disease Program and a Robert L. Moody, Sr. Faculty Scholar.



Dr. Ralph DeBerardinis

Dr. DeBerardinis holds the Joel B. Steinberg, M.D. Chair in Pediatrics and is a Sowell Family Scholar in Medical Research.

More online: Read the full story on *Center Times Plus* at utsouthwestern.edu/ctplus.

Errant DNA boosts immunotherapy effectiveness

By Christen Brownlee

DNA that ends up where it doesn't belong in cancer cells can unleash an immune response that makes tumors more susceptible to immunotherapy, the results of two UT Southwestern studies indicate. The findings, published recently in *Cancer Cell*, suggest that delivering radiation – which triggers DNA release from cells – before immunotherapy could be an effective way to fight cancers that are challenging to treat.

Nearly a decade ago, the Food and Drug Administration approved checkpoint inhibitors, a type of immunotherapy that removes defenses allowing cancer cells to masquerade as healthy cells, prompting the immune system to attack them. In 2015, researchers showed that these therapies had particular promise for cancers prompted by defects in cells' “mismatch repair” system, which proofreads DNA as it is copied. If this system is faulty, genetic mutations quickly build, spurring some cells to become malignant.

These copious mutations – which tend to make tumors difficult to treat with chemotherapy and radiation – were thought to be the reason why checkpoint inhibitors were effective against mismatch repair deficient (dMMR) tumors. However, only about half of patients with dMMR tumors respond to these therapies, said study leader Dr. Guo-Min Li, Professor of Radiation Oncology and a member of the Harold C. Simmons Comprehensive Cancer Center.

“Some mechanism beyond these many mutations must be at play to trigger an immune

attack,” said Dr. Li, who is also Director of the Reece A. Overcash Jr. Center for Research on Colon Cancer, in Honor of Dr. Eugene Frenkel, and a Cancer Prevention and Research Institute of Texas (CPRIT) Scholar in Cancer Research.

To investigate further, Drs. Li and Yang-Xin Fu, Professor of Pathology at UTSW, a CPRIT Scholar, and co-corresponding author of both studies, genetically manipulated both human and mouse cancer cells to remove *Mlh1*, a gene that's pivotal for mismatch repair. Compared to normal cells that were not manipulated, those without *Mlh1* quickly accumulated DNA breaks and DNA in the cytosol, or intracellular fluid of the cell, rather than in its nucleus, where DNA normally resides. Treating these cells with radiation significantly enhanced how much cytosolic DNA was present.

The researchers reasoned that the increased DNA breaks from within the nucleus were prompted by overactivity of a gene called *Exo1*, which works closely with *Mlh1* to cut mistakes out of DNA during replication and repair. Further investigation showed that when researchers removed this gene from cells without *Mlh1* or disrupted the interaction between the proteins produced by *Mlh1* and *Exo1*, the cells no longer accumulated DNA breaks and cytosolic DNA. But when *Exo1* remained active in these cells, it appeared to cut DNA unabated, prompting this damaged genetic material to leak from the nucleus.

More experiments showed that this leaked DNA activated the cGAS-STING pathway, a part of the immune system that senses DNA outside

of a cell nucleus and interprets it as either a sign of serious cellular damage or infection. This then triggers an immune response.

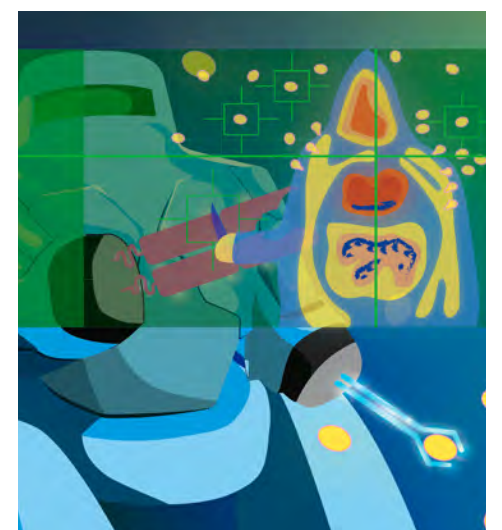
Indeed, when Dr. Li and his colleagues disrupted this pathway in cancer cells without *Mlh1*, tumors grew far faster than in cells with intact cGAS-STING pathways because they were spared from the immune system.

The researchers further showed that this DNA sensing pathway is pivotal for an immune response by treating animals carrying *Mlh1* deficient tumors with checkpoint inhibitors. When these tumors had normal cGAS-STING pathways, the drugs were effective; but when the researchers disrupted any part of the pathway, the tumors resisted treatment.

These findings, Dr. Li said, could eventually steer how dMMR tumors are treated in the future. For example, he said, evaluating how well tumors' cGAS-STING pathways work could help physicians decide whether patients will benefit from immunotherapy drugs, saving them time, money, and potential side effects.

Researchers may also discover ways to manipulate downstream factors of the cGAS-STING pathway to improve its effectiveness in tumors that have lost this DNA sensor, making these cancers responsive to checkpoint inhibitors. Additionally, because radiation encourages DNA to leak into the cytoplasm, it could further enhance the effectiveness of these therapies.

“This strategy of delivering radiation before immunotherapy is already showing success in clinical trials, but the reason behind how it works



This illustration by Yipin Wu depicts how cells use a programmed mismatch repair deficiency-activated system (robot) to detect and eliminate tumors (yellow cells).

was unknown,” Dr. Li said. “The mechanism we report in these two papers adds insight that could someday lead to completely new ways to treat cancers.”

Dr. Fu holds the Mary Nell and Ralph B. Rogers Professorship in Immunology.

More online: Read the full story on *Center Times Plus* at utsouthwestern.edu/ctplus.

Dallas Heart Study yields new insights about depression

By Sarah Williams

UT Southwestern research reveals new insights about risk factors for depression based on data from a landmark longitudinal study focused on heart disease.

One study, in the journal *Maturitas*, indicates which symptoms of menopause are most predictive of depression. The other study, published in the *Journal of Clinical Psychiatry*, shows a link between an inflammatory molecule in the blood and a person's likelihood of depressive symptoms.

Both studies are based on data from the Dallas Heart Study (DHS) which, since 2000, has tracked the health of thousands of diverse participants with the goal of improving the diagnosis, prevention, and treatment of heart disease.

"The DHS dataset is an extraordinary resource at UT Southwestern," said Dr. Sherwood Brown, senior author of both papers and Professor of Psychiatry and Vice Chair for Clinical Research at UTSW.

The first two years of the study, more than 6,000 residents of Dallas County completed a detailed medical survey; 3,500 of them, aged 30 to 65, provided blood samples and underwent imaging studies. The DHS put particular emphasis on recruiting a diverse group; more than half of all participants were African American and 17 percent were Hispanic.



Dr. Sherwood Brown



Michael Xincheng Ji



Sydney Singleterry

Menopause and depression

In the *Maturitas* paper, Dr. Brown and his colleagues used DHS data to study menopausal women, a group known to have an increased risk of depression.

Previous studies have found a correlation between the most common symptoms of menopause – hot flashes, night sweats, and sleep disturbances – and the onset of depression. Menopause also causes sexual symptoms, including vaginal dryness and low libido, but few studies have looked at the association between these symptoms and depression.

UTSW researchers analyzed DHS data on 384 women aged 37 to 73 years old who self-reported being in menopause. Sixty-four percent of the women were non-Hispanic Black, 26.8 percent were non-Hispanic white, and 9.11 percent were Hispanic.

"There are very different cultural and ethnic experiences around menopause, so it was important to us to look at a very diverse sample of women," said Michael Xincheng Ji, co-first author of the study and a fourth-year UTSW medical student.

As part of the Dallas Heart Study, the women reported whether they had symptoms classically associated with menopause, which the researchers grouped into vasomotor, psychosocial, physical, or sexual symptoms. In addition, each woman completed the Quick Inventory of Depressive Symptomatology-Self Report survey (QIDS-SR), which gauged the presence of depression symptoms.

The prevalence of sexual symptoms of menopause was positively associated with a higher score on the QIDS-SR. This association remained even after excluding women who were

taking antidepressants, and there was also an association between psychosocial symptoms of menopause and the QIDS-SR score. No association was found between vasomotor or physical symptoms and the QIDS-SR score, and ethnicity was not a strong predictor of the depression symptoms.

"Recognizing patterns in who is most likely to develop depression is really important to help guide our screening efforts," said Sydney Singleterry, co-first author of the new work and a fourth-year UTSW medical student.

Inflammation and depression

More than 20 years ago, clinicians found that a pro-inflammatory drug used to treat some diseases could cause depression. Since that time, researchers including Dr. Brown have wondered about the link between inflammatory molecules and depression.

To that end, Dr. Brown and Samara Huckvale – an undergraduate at Columbia University who as a high school student worked in Dr. Brown's lab in 2019 through UT Southwestern's STARS (Science Teacher Access to Resources at Southwestern) Summer Research Program – analyzed data on 3,033 adults who had provided blood samples and completed a depression screening questionnaire as part of the DHS. The STARS Program, begun in 1991, provides summer research

opportunities to high school students.

They discovered that levels of the inflammatory molecule GlycA correlated with the severity of depressive symptoms. Even after controlling for factors such as sex, ethnicity, antidepressant use, education, and body mass index, GlycA levels remained associated with depression severity.

"This study suggests that maybe we could predict or diagnose depression based on inflammatory scores," said Ms. Huckvale, who aspires to be a chemist. "Or maybe eventually we'll be able to design therapies that actually target this inflammation to treat depression."

Dr. Brown added that he'd like to study whether GlycA levels can predict how well a treatment for depression works or help guide the best antidepressants for particular patients. He'd also like to follow patients over time to gauge whether GlycA levels rise before or after the onset of depression symptoms.

Dr. Brown holds the Lou and Ellen McGinley Distinguished Chair in Psychiatric Research and the Aradine S. Ard Chair in Brain Science.

More online: Read the full story on *Center Times Plus* at utsouthwestern.edu/ctplus.

IN MEMORIAM

Dr. Kenneth Altshuler: Led Department of Psychiatry for more than two decades

By Carol Marie Cropper

Dr. Kenneth Altshuler, a Professor Emeritus and longtime Chair of Psychiatry at UT Southwestern who helped to advance mental health causes in Dallas, died Jan. 6. He was 91.

Dr. Altshuler came to Texas in 1977 from Columbia University's College of Physicians and Surgeons (now Vagelos College of Physicians and Surgeons) and remained at UT Southwestern for 42 years. During 23 years as Chair of the UTSW Department of Psychiatry, he transformed a fledgling department into one of national scientific stature, growing the faculty from six full-time physicians to more than 100.

He and his wife, the late Ruth Collins Sharp Altshuler, were known for their civic involvement in Dallas and philanthropic generosity to UT Southwestern and other organizations in North Texas.

Dr. Altshuler "will be remembered not only for his achievements

but for his wit and warmth," said Dr. W. P. Andrew Lee, Executive Vice President for Academic Affairs, Provost, and Dean of UT Southwestern Medical School.

"Dr. Altshuler was a leader in psychiatry who had a profound and positive impact on mental health care in Dallas. His passing represents a great loss for the entire UT Southwestern community, and we offer our sincerest condolences to his family," Dr. Lee said.

Born in New Jersey, Dr. Altshuler was a graduate of Cornell University and then the University at Buffalo School of Medicine (now the Jacobs School of Medicine and Biomedical Sciences). He received specialty training in psychiatry at Columbia University's Psychoanalytic Clinic for Training and Research and later joined Columbia's faculty, where he became known for his research into mental illness among deaf patients as well as research in geriatric psychiatry. A program for the deaf he helped

establish in New York was awarded a Certificate of Special Achievement by the American Psychiatric Association.

A highly accomplished educator and researcher, Dr. Altshuler wrote more than 140 articles and books in various fields such as genetics, geriatrics, early total deafness, psychoanalysis, and sleep and dreams, said Dr. Lee.

Well into his 80s, Dr. Altshuler remained a contributing member of the Department of Psychiatry at UT Southwestern, staying away from campus only after the rise of COVID-19, said Dr. Carol Tamminga, Professor and Chair of the Department. "He loved the Department of Psychiatry and remained attached to it his whole life. His love for clinical care, education, and research in psychiatry and his love for understanding human behavior were always apparent.

"He stayed informed about his field and continued to be involved in Dallas affairs throughout his whole life," Dr. Tamminga added.



Dr. Kenneth Altshuler

Dr. Altshuler was a moving force in establishing the Dallas Psychoanalytic Institute. He also was a Director of the National Board of Medical Examiners and Chair of its Psychiatry Test Committee; a Director of the American Board of Psychiatry and Neurology (its President in 1996); and President of the American Association of Chairmen of Departments of Psychiatry from 1990 to 1991.

He received the Psychiatric Excellence Award from the Texas Society of Psychiatric Physicians in 1996 and

the Texas Star Award from the Mental Health Association of Texas in 1997 for outstanding community service in mental health. In 1999, then-Gov. George W. Bush appointed him to the Board of the Texas Department of Mental Health and Mental Retardation.

He was also honored by Dallas County Mental Health and Mental Retardation when it renamed one of its clinics the Kenneth Z. Altshuler Mental Health Clinic.

With his late wife Ruth, who died in 2017, he established the Ruth & Ken Altshuler Fund for Clinical Psychiatry and the Kenneth Z. Altshuler Fund for Psychiatric Education to support clinical research and academic education in UTSW Department of Psychiatry programs related to mental illness.

Dr. Altshuler served in the Navy from 1953-55, leaving the service with the rank of lieutenant junior grade in the Medical Corps.

He is survived by two children, Steven (Terry) Altshuler, M.D., and Dara (Robert Kaplan) Altshuler, as well as six grandchildren. A third child, Lori (Greg Monfette) Altshuler, M.D., died in 2015.

Dr. Lee holds the Atticus James Gill, M.D. Chair in Medical Science.

Dr. Tamminga holds the Stanton Sharp Distinguished Chair in Psychiatry.

TAMEST Continued from page 1

a pioneer in his field, we are honored to recognize him as the recipient of our 2021 O'Donnell Award in Science and are grateful for the discoveries he is making here in Texas that will impact the rest of the world."

Dr. Margaret Phillips, Professor and Chair of Biochemistry, nominated Dr. Tu for the award. "Ben is an incredibly talented scientist," Dr. Phillips said. "You could almost see him as a detective. He digs into the nuts and bolts of how cells are functioning and regulating themselves."

A recent line of research by Dr. Tu holds promise for greater understanding of the cause of the neurodegenerative diseases ALS, or Lou Gehrig's disease, and spinocerebellar ataxia, a degenerative genetic disease.

In two 2019 studies, both published in *Cell*, Dr. Tu reported that a protein with a known link to ALS called ataxin-2 is necessary for cells to do the work of clearing out damaged or unneeded parts in a process known as autophagy. Without the protein, cells are more likely to die, he said.

In an earlier study, published in *Molecular*

Cell in 2011, Dr. Tu described how the metabolite acetyl-CoA plays a key role in turning on the genes necessary for cell growth. "At the time, few scientists accepted the idea that a metabolite could have such an important role in regulating gene expression," said Dr. Tu. "Historically, the field had thought that transcription factors (proteins involved in transcribing the genetic information contained in DNA) dictate what genes are turned on."

This new understanding of the importance of acetyl-CoA led to further research by Dr. Tu and to findings reported in a 2014 *Cell* paper that showed the metabolite might be important for the survival and growth of liver cancer cells. His current research in mice will investigate if chemicals that inhibit acetyl-CoA might slow the growth of pancreatic cancer cells.



Dr. Tu came to UT Southwestern in 2004 after receiving master's and bachelor's degrees in chemistry from Harvard University and a Ph.D. in biochemistry and biophysics at the University of California, San Francisco. He worked as a postdoctoral fellow under Dr. Steven McKnight, Professor of Biochemistry, before joining the UTSW faculty as an Assistant Professor of Biochemistry in 2007.

His previous honors include the Norman Hackerman Award in Chemical Research from The Welch Foundation in 2014 and recognition as a three-time finalist for the prestigious Blavatnik Awards for Young Scientists – in 2017, 2018, and 2019. He is also a UT Southwestern Presidential Scholar.

TAMEST, founded in 2004 by then-U.S. Sen. Kay Bailey Hutchison and two Texas Nobel Laureates, Dr. Michael Brown of UT Southwestern and Dr. Richard E. Smalley of Rice University, strives to bring together the state's brightest minds. Members include the Texas-based members

of the National Academies of Medicine, Engineering, and Sciences; the Royal Society; and Texas' 11 Nobel Laureates.

Dr. Brown, a Regental Professor, is Director of the Erik Jonsson Center for Research in Molecular Genetics and Human Disease, as well as a Professor of Molecular Genetics and Internal Medicine. He holds The W.A. (Monty) Moncrief Distinguished Chair in Cholesterol and Arteriosclerosis Research and the Paul J. Thomas Chair in Medicine.

Dr. McKnight holds the Distinguished Chair in Basic Biomedical Research.

Dr. Phillips holds The Sam G. Winstead and F. Andrew Bell Distinguished Chair in Biochemistry.

Dr. Tu holds the Martha Steiner Professorship in Medical Research, and is a W.W. Caruth, Jr. Scholar in Biomedical Research.

More online: Find out more about Dr. Tu's research in a video on *Center Times Plus* at utsouthwestern.edu/ctplus.

Virtual forums initiate campus conversations about racial diversity

By Nyshicka Jordan

In a year when protests over racial justice gripped the nation, UT Southwestern's Office of Institutional Equity and Access, Office of Student Diversity and Inclusion, and Office of Faculty Diversity and Development found ways to bring the campus together for necessary conversations about race.

Between June and October, Institutional Equity and Access delivered 36 training sessions on equity, unconscious bias, inclusive team building, and inclusive management to more than 1,750 employees. Student Diversity and Inclusion held a Diversity Lunch and Learn series that included topics such as coping with racism for African American students, the impact of COVID-19 on communities of color, and the role of allyship (the process of building alliances with marginalized groups to promote inclusion). And Faculty Diversity and Development sponsored two webinars focused on addressing racial bias in health care and science for more than 1,200 attendees.

"Research shows that African Americans' mental health suffers in the days after the death of an unarmed Black person. Being constantly reminded of this information on TV and social media takes an additional mental toll," said Travis Gill, Assistant Vice President in the Office of Institutional Equity and Access. "This is a larger conversation that needs to include how social justice issues impact our health, and as a health care organization, we're invested in addressing this."

Many people feel ill-equipped to have these conversations, Mr. Gill noted, and as such his office received several inquiries from managers about how to properly talk with their staffs. He said using campuswide virtual forums help those who might be hesitant to reach out directly. Additionally, Institutional Equity and Access provided a list of resources to department managers to ensure that they have the proper tools for these conversations. Some employees expressed concern that managers hadn't spoken to them as Black Lives Matter protests spiked last summer.

"I think it's important that President Dr. Daniel K. Podolsky put out messaging that 'This is a place you belong.' It's valuable to hear that from senior leaders," Mr. Gill said. "But we also need to get it from our local, micro-level teams because most people won't interact with executive leadership. But you do interact with your manager every single day."

The power of equity

Virtual sessions have included internal and external diversity advocates and consultants as panelists, often featuring the voices of African American leaders. One of the lessons passed along by the panelists is how institutions should focus on equity. "Equality is making sure everyone has equal access, but with equity it's important to understand there are different barriers to entry for different groups and then accounting for those different obstacles," Mr. Gill said. "So when we talk about racial equity, it's the redistribution of power and resources to folks who may have been historically marginalized and underserved and ensuring that we are now serving those populations."

It's critical to understand the harm of uncon-



A team from the Office of Institutional Equity and Access facilitates a diversity and inclusion workshop with UT Southwestern employees.



Dr. Clarissa Johnson (left) and Dr. Alecia Nero kneel during a White Coats for Black Lives demonstration held on campus in June to honor the life of George Floyd. Doctors and other health care workers say acknowledging societal inequality is critical at a health care institution in order to provide equitable care.

scious bias, no matter the job, Mr. Gill said. While it's not possible to change everyone's mindset, he said the purpose of his office is to de-bias policies and procedures to ensure that equitable access and opportunity exists for employees of all backgrounds. Moving forward, Institutional Equity and Access will continue to hold similar conversations and is using holistic approaches to provide inclusive learning opportunities to employees about issues concerning equity. For example, the office has partnered with the six Business Resource Groups (BRGs) to build community and is working with those groups and Talent Acquisition on a new initiative to bring in more diverse employee referrals.

Culturally competent care and education

Similarly, Student Diversity and Inclusion and Faculty Diversity and Development remain focused on ways to move these conversations forward and build on existing diversity initiatives. In October, Student Diversity and Inclusion began sponsoring the Anti-Racism Virtual Series, which is open to everyone on campus. Topics have included overcoming discrimination and the role of medical schools in addressing



In December 2019, Dr. Shawna Nesbitt attends to Eloise Baker at a health fair while medical student Thanos Rossopoulos observes. As Associate Dean for Student Affairs in the Office of Student Diversity and Inclusion, Dr. Nesbitt regularly educates medical students on issues concerning equitable care for diverse patients.

health disparities.

"The focus of the Anti-Racism Series is to shed light on the multiple places in society where racism is embedded into the fabric of our society. While it is important to not be a racist person or institution, to really support the environment for change to occur, we must seek to be 'anti-racist.' That is to look for the places where changes can be made to the framework and procedures of our society and complex systems to unroof racist practices that have been set in place long ago," said Dr. Shawna Nesbitt, Associate Dean for Student Affairs in the Office of Student Diversity and Inclusion.

Throughout the year, Student Diversity and Inclusion held closed sessions for students in the Medical School, Graduate School of Biomedical Sciences, and the School of Health Professions. Some sessions brought together the campus's Black students to interact, while others allowed all students to have broader discussions about diversity-related issues such as how to increase Black student enrollment and Black faculty.

Meanwhile, conversations targeted at faculty have allowed African American researchers to hold discussions on examining how race factors

into their work experiences, mentoring the next generation of diverse scientists and health care professionals, and providing culturally competent patient care. "Our goal at UT Southwestern is to educate and produce culturally sensitive health care professionals, which includes educating faculty on these matters, because if faculty lack understanding, we are unable to effectively teach our students," said Dr. Carolyn Bradley-Guidry, Assistant Dean for Diversity, Inclusion, and Equity Affairs in the School of Health Professions, Associate Professor of Physician Assistant Studies and a 1998 graduate of the School of Health Professions.

Leaders remain focused on increasing diversity among faculty and students to create an equitable health care and educational environment. They point to decadeslong efforts that have boosted enrollment of students underrepresented in medicine (URM) who identify as African American/Black, Hispanic/Latinx, or Native American/Alaska Native. URM students in the Medical School make up a record 27 percent of the Class of 2024 – a ratio higher than the nationwide average of 14 percent cited by the Association of American Medical Colleges. In the School of Health Professions, 25 percent of students are classified as URM, and that ratio is 30 percent in the Graduate School. The ratio of Black students in the Graduate School is 8.3 percent (above the national average of 5.3 percent); 7 percent in the Medical School (the national average is 7.1 percent); and 8.16 percent in the School of Health Professions. Because health profession programs vary in type across the country, there is no national data available for exact comparisons.

The Office of Faculty Diversity and Development and the Office of Women's Careers are using pipeline programs as one strategy to make similar strides among faculty. Programs include Housestaff Emerging Academy of Leaders (HEAL), which develops URM medical residents and fellows for faculty positions, and the Provost's Initiative for Diverse Emerging Scholars (PROVIDES) Program in the Graduate School that prepares URM postdoctoral fellows for faculty positions.

In December, UTSW welcomed Dr. Quinn Capers IV as Associate Dean for Faculty Diversity and Inclusion in the Department of Internal Medicine. Dr. Capers, who comes from The Ohio State University College of Medicine, will oversee and develop programs and initiatives that enable UTSW to achieve goals in expanding URM faculty.

And in January, Dr. Arnaldo Díaz Vázquez joined UT Southwestern as the inaugural Assistant Dean for Diversity and Inclusion in the Graduate School. He came from the University of Pennsylvania, where he served in a similar position for the past seven years.

Dr. Capers holds the Rody P. Cox, M.D. Professorship in Internal Medicine.

Dr. Podolsky holds the Philip O'Bryan Montgomery, Jr., M.D. Distinguished Presidential Chair in Academic Administration, and the Doris and Bryan Wildenthal Distinguished Chair in Medical Science.

Students honored for community service at MLK event

By Lori Sundeen Soderbergh

Three UT Southwestern Medical School students were honored for their community service at this year's Martin Luther King Jr. Commemorative Celebration, held virtually on Jan. 20. The annual campus event honors the legacy of Dr. King, a champion for civil rights and service to the community.

Second-year student Fatou Sahor from Houston won the top award, which includes a \$5,000 scholarship. Ms. Sahor began her community service as a free clinic manager at Union Gospel Mission Calvert Place Clinic and the Center of Hope Clinic to serve the homeless population in Dallas. She has also worked as an advocate for systemic change, including developing a national policy proposal aimed at reducing maternal mortality in Black women.

"Every time I engage in community service, it inspires me to do better and to be more confident in my abilities and what I can contribute to society by helping others. Because of this, my work at UTSW has only just begun," Ms. Sahor said.

Two other students were honored with \$500 runner-up awards: second-year student Alison Liu from Edmond, Oklahoma, and third-year student Esha Hansoti from Flower Mound. Ms. Liu is passionate about working with underserved populations. She has worked as a patient navigator for individuals experiencing homelessness, training other students to connect clients with resources addressing socioeconomic barriers to care. Ms. Hansoti has worked on gender-related issues, helping to launch both Sexual Assault Awareness Month and Transgender Remembrance Day at UT Southwestern in 2019.

Guest speaker at the event was Dr. Thomas A. LaVeist, Dean of the Tulane University School of Public Health and Tropical Medicine and Weatherhead Presidential Chair in Health Equity. Dr. LaVeist is a leading researcher on the topic of health disparities and the social determinants of health, including areas such as U.S. health and social policy, the role of race in health research, social factors contributing to mortality, longevity, and life expectancy, and the utilization of health services in the United States.



UT Southwestern medical students (from left) Esha Hansoti, Fatou Sahor, and Alison Liu receive MLK Scholarships in recognition of community service.

Scholarships for physician assistant students will aid underserved communities

By Lori Sundeen Soderbergh

UT Southwestern's School of Health Professions has received a \$3.25 million federal grant to provide financial assistance to students in its nationally ranked Physician Assistant Studies Program.

The Scholarship for Students from Disadvantaged Backgrounds Program, administered by the Health Resources and Services Administration (HRSA), part of the U.S. Department of Health and Human Services, will help defray the cost of tuition for 120 students pursuing a Master of Physician Assistant Studies degree over the next five years.

Thirty students were selected from the three currently enrolled classes to receive a total of \$648,000 in 2020-21. The scholarships are awarded based on federal financial need guidelines.

"UT Southwestern is one of just five PA programs in the country to receive this honor. I am excited our program will provide scholarships to reduce financial barriers for students from a wide variety of backgrounds," said Dr. Carolyn Bradley-Guidry, Associate Professor, Distinguished Teaching Professor in the Department of Physician Assistant Studies, Assistant Dean for Diversity, Inclusion, and Equity Affairs

in the School of Health Professions, and a 1998 graduate of the School.

Over the past decade, UT Southwestern's PA program, which is ranked No. 7 in the country by *U.S. News & World Report* in "America's Best Graduate Schools 2020," has consistently increased the number of students from disadvantaged and underrepresented minority (URM) backgrounds through intentional recruitment efforts. Of the 169 students currently enrolled, 35 percent identified as URM and 47 percent met the HRSA criteria for educationally and/or environmentally disadvantaged.

"Scholarship recipients are committed to pursuing primary care in medically underserved communities upon graduation. Their commitment is a step forward in making impactful change in closing health care gaps associated with health inequities and disparities that disproportionately affect these communities," said Dr. Temple Howell-Stampley, Professor of Internal Medicine and Department Chair and Program Director of the Physician Assistant Studies Program.

Three of the scholarship recipients, each of them first-generation college graduates, spoke about the impact of the new program.

Chris Johnson, a first-year PA student from Burleson, Texas, attended West Texas A&M

University before coming to UT Southwestern to become one of 35 men currently enrolled in the PA program. He hopes to work within the correctional system after graduation. "This scholarship doesn't change your day, week, or year – it changes your life. In 20 or 30 years, it will still have an impact," he said. Upon graduation in December 2022, Mr. Johnson wants to work closely with inmates in order to help them with medical and psychological issues.

Ireca Mance, also a first-year PA student, brings the experience of growing up in a biracial family to her role in health care. She is the daughter of a Filipino mother and an African American father. She took an unconventional and honorable route to UT Southwestern by first serving six years in the U.S. Air Force, then attending college at Texas Woman's University. She is interested in veterans' issues and hopes to work for Veterans Affairs or in family practice in an underserved area after graduation in 2022. "My defining moment in choosing a career was serving in Iraq in 2010. We weren't the same people when we came back. My physician helped me; others were not so lucky," recalled Ms. Mance.

Working as a paramedic for a Fort Worth ambulance company convinced second-year PA student Jeanette Acker to make medicine her career path. She grew up in a family with seven

children in Nazareth, a small farming community in West Texas, then studied biology at the University of North Texas. Upon graduation in December 2021, she hopes to return home, where the need for primary care is immense. "Working in a rural community means I'll be able to form bonds with my patients and get to know them, which I feel is important in a provider-patient relationship," she said. "I'm grateful that this scholarship will remove some of the financial burden of my studies."

The Program will continue to develop by strengthening student peer support through expansion of a mentorship program, collaborating with key stakeholders, and enhancing community partnerships in urban and rural communities.

"Dr. Bradley-Guidry and her team, Ms. Veronica Coleman, MPAS, PA-C, and Ms. Isela Perez, are committed to making a difference in the trajectory of our PA graduates to continue to align with the mission and vision of the program," said Dr. Howell-Stampley.

Dr. Howell-Stampley holds the Cissy and W. Plack Carr, Jr. Professorship in Medical Education, and the P. Eugene Jones, Ph.D., PA-C Professorship in Physician Assistant Studies.

Health Professions students celebrate graduation

A record class size of 140 students graduated from the School of Health Professions on Dec. 13 in a virtual commencement ceremony that delivered on a special celebration with inspiring speeches, photos, and videos in the midst of a pandemic.

In spite of any roadblocks caused by COVID-19, students in the Class of 2020 finished their training to graduate on time. Leaders credited a strong educational technology team that allowed the school to quickly modify and produce new curricular content and scale remote training to result in a timely graduation.

"The School of Health Professions has always emphasized teamwork in achieving our goals, and 2020 presented a unique challenge with COVID-19 and the need to ensure all students continued to safely progress towards graduation," said Dr. Jon Williamson, the School's Dean. "We look forward to seeing how graduates will succeed as health care providers in the future and are proud that UT Southwestern was able to be a part of their professional journeys."

Degrees granted included master's in prosthetics and orthotics, clinical rehabilitation counseling, radiation therapy, physician assistant studies, and clinical nutrition, plus doctorates in physical therapy.



Dr. Jon Williamson, Dean of the School of Health Professions, gives congratulatory remarks to the graduates.



Graduates received their commencement program and other graduation regalia in advance in a care package.



Petra Ihezie, awarded a Doctor of Physical Therapy degree, celebrates her graduation.



Travis Kyle picks up his graduation regalia in the Student Center ahead of the virtual commencement ceremony. Mr. Kyle was awarded a Master of Physician Assistant Studies degree on Dec. 13.

Vaccine Continued from page 1

as prioritized by state and federal guidelines. The vaccine rollout to employees and then patients went so well that UT Southwestern was named a vaccination hub by the state, enabling UTSW to assist in broader dissemination efforts that began in January. This includes an agreement to help vaccinate people who have registered with Dallas County Health and Human Services.

"We've worked hard to make sure people are informed about the process, have the information they need to make decisions about taking the vaccine, and know that our team is prepared to deliver the vaccine safely," said Dr. John Warner, Executive Vice President for Health System Affairs. "The execution has been spot on. The arrival of the vaccine gives us a sense of optimism that we're in for a better year."

The first group of UTSW employees to receive the vaccine included physicians, nurses, emergency department staff, and other groups of workers who have direct patient contact. Vaccinations were then opened in phases to other UT Southwestern employees. Both the Pfizer-BioNTech and Moderna vaccines require a second shot in several weeks.

"I think as health care personnel, we kind of owe it to society to be leaders and show that the vaccine is safe and to get the vaccination ourselves. To me this is part of what we do to take

care of everybody else," said Craigreon Wallace, a Physician Assistant in William P. Clements Jr. University Hospital's COVID-19 Intensive Care Unit, who was among the first UTSW workers to receive the shot. "I'm elated and I'm very confident. I hope we can convince enough people that the vaccine is safe, that it works, and that it is going to help protect them and their loved ones."

Jana Smith, a Registered Vascular Sonographer who conducts ultrasound imaging, was the first UT Southwestern employee to receive the vaccine on Dec. 15.

"I think this is the step we need to take to stop the spread from one person to another. If I can help be a barrier to the spread of COVID-19 in the community, I'm honored to do that," said Ms. Smith. "What makes this vaccine special is the way it is administered, with the mRNA (messenger RNA) and not putting in a live or weakened virus like we get with the flu shot."

The Medical Center's vaccine rollout, launched within hours of the FDA's Dec. 11 authorization of the Pfizer-BioNTech vaccine, was months in the making. Planning included an independent assessment of clinical trial data by UTSW's Vaccine Science Review Committee to evaluate the vaccines' safety and effectiveness.

"The vaccine trials that were done, the amount of individuals enrolled in them, and the effectiveness and safety that the trials proved were really on par or beyond the data that we would require for any vaccine we currently use,"

said Dr. James Cutrell, Associate Professor of Internal Medicine, Program Director of UTSW's Infectious Diseases Fellowship Program, and a 2007 UTSW Medical School graduate. "We're starting to see the light at the end of a long tunnel, helping us start to bring this pandemic to a close."

Odalys Landaverde, an Emergency Room Technician at Clements University Hospital, said she made an informed decision to be vaccinated. "I know a lot of people are nervous, but you have to trust the science. I read about it and I just knew I could trust the vaccine," Ms. Landaverde said.

Dr. Warner holds the Jim and Norma Smith Distinguished Chair for Interventional Cardiology and the Nancy and Jeremy Halbreich, Susan and Theodore Strauss Professorship in Cardiology.



Pharmacists unload doses of the vaccine ahead of staff arrivals.



Dr. Jun Sasaki, Assistant Professor of Anesthesiology and Pain Management, was among the first to receive the vaccine.



Dr. Abey Thomas, Medical Director, Hospital Medicine Services

Artwork gift takes generosity to new heights at Clements University Hospital

By Andrew Marton

The plaque reads simply: "Gift of Barbara Thomas Lemmon in honor of Mark L. Lemmon, M.D." The gift itself is an artistic stunner.

Unveiled in July, the artwork floats within the atrium lobby of the new third tower at William P. Clements Jr. University Hospital. Its graceful form evokes a flock of birds undulating through the sky. Measuring 64 feet long by 35 feet high, the sprawling mobile is composed of more than 5,000 hollow, stainless steel spheres suspended from more than 1,300 steel cables.

The commissioned work, titled *Myriad* by New York-based artist Danielle Roney, is the latest donation – and the first gift of art – from Barbara Thomas Lemmon. Mrs. Lemmon's support of the institution spans 30 years, much of it given together with her late husband, former UTSW plastic surgeon Dr. Mark L. Lemmon.

"The main goal of this gift is to bring great pleasure and happiness to the many people who enter this hospital," said Mrs. Lemmon, a member of UT Southwestern's President's Advisory Board. "UT Southwestern has always strived to include original works of art on campus to both enhance the aesthetics of its hospital and clinics and inspire its patients, visitors, and employees."

The artwork's impressive presence in the hospital atrium resonates with special strength for Mrs. Lemmon, who is also a member of UT Southwestern's Arts and Interiors Committee, which advises on acquisitions to the institution's campus art collection. The artwork is notable for its beauty and symbolism.

"Art simultaneously changes our surround-



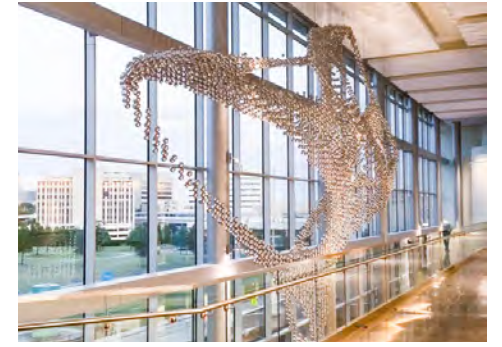
Barbara Lemmon (left) and artist Danielle Roney stand in front of Mrs. Lemmon's gift of artwork called *Myriad*.

ings and how we view the world, and this gift is significant for the ways it transforms the Clements University Hospital atrium for our patients and caregivers," said Dr. Daniel K. Podolsky, President of UT Southwestern. "This gift is also a physical reminder of how Barbara Lemmon's sustained philanthropy has shaped this institution and serves as a stirring tribute to the memory of Dr. Lemmon."

The Lemmons' charitable giving to UT Southwestern harkens back to 1989, when Mrs. Lemmon joined the former Friends of the

Center for Human Nutrition, a giving organization that supported nutrition research. Upon Dr. Lemmon's death in 2018, the family requested that memorial donations be directed to the Peter O'Donnell Jr. Brain Institute at UT Southwestern. Dr. Lemmon had a similar affinity for art, which underscored Mrs. Lemmon's decision to dedicate her gift in his memory.

The gift's connection to people is a recurring motivation, and while reflecting on the artwork's special place in Clements University Hospital, Mrs. Lemmon's thoughts immediately



Myriad now hangs in the atrium lobby of the new third tower at William P. Clements Jr. University Hospital.

turn to those who will experience it.

"I consider this work to be another part of our continuing efforts to make Clements University Hospital as welcoming as possible for patients, visitors, and the faculty and staff who care for them," she said. "I really believe art can have a curative effect on people. When someone looks at a piece of art, they feel the day is that much brighter."

Dr. Podolsky holds the Philip O'Bryan Montgomery, Jr., M.D. Distinguished Presidential Chair in Academic Administration, and the Doris and Bryan Wildenthal Distinguished Chair in Medical Science.

More online: Read the full story on *Center Times Plus* at utsouthwestern.edu/ctplus.

GIFTS FOR UT SOUTHWESTERN

Bowles endow fellowship in neurology, dementia

Janie and Don Bowles believe in a future in which dementia will be a preventable, treatable, and curable disease. In hopes of achieving that goal, they have established a \$1 million fellowship fund through Southwestern Medical Foundation to help train new leaders and cultivate knowledge in dementia care and discovery at UT Southwestern's Peter O'Donnell Jr. Brain Institute.

The couple created the Penny and Jesse Ralston Behavioral Neurology and Dementia Fellowship Fund in honor of Mrs. Bowles' parents. Janie Bowles' late mother, Penny Ralston, was diagnosed with Alzheimer's disease, while Mrs. Bowles herself has been diagnosed with Lewy body disease, the second most common type of progressive dementia.

"Janie and I feel that the dollars we are investing here are going to do nothing but grow, and as they do, they have the potential to lead to better treatments and new discoveries in the fight against dementia," Mr. Bowles said.

Crowley Foundation's gift supports hospital expansion

The David M. Crowley Foundation recently

gave \$1 million to support construction of the new third tower of the William P. Clements Jr. University Hospital. The Foundation has invested generously in research at UT Southwestern that includes gastroenterology, oncology, ophthalmology, pain management, and orthopedics. To date, the Foundation's philanthropy to the institution exceeds \$7.3 million.

Over the years, leaders at the Foundation have taken a consistent interest in brain and nervous system research, with gifts supporting investigations in Alzheimer's and Parkinson's diseases.

"We are genuinely excited to see the new tower offering the highest level of brain care in North Texas. I think it will serve as a model for other hospitals – not just around the state – but across the country," said Delia Johnson, Vice President of Programs for the Foundation.

For the gift of life, Wares give back to UTSW

Amy Ware's lifesaving care at UT Southwestern prompted her and husband Leslie to generously donate funds to support the research of clinical faculty members starting

their initial research.

After completing a peer-review process, three proposals – two from Neurology, one from Cardiology – received \$50,000 each in support. The couple, through their Amy and Leslie Ware Foundation, plan to award the same amount over the next two years, resulting in a total gift of \$450,000 over three years.

In 2017, Mrs. Ware went into seizures at her Dallas home. Paramedics worked for 17 minutes to shock Mrs. Ware's heart back into rhythm. She was then taken to William P. Clements Jr. University Hospital, where she was diagnosed with cardiac arrest and successfully treated.

"UT Southwestern's team of doctors put together this amazing game plan in order to save my life," Mrs. Ware said. "We're excited about supporting the best doctors who both do research and see patients."

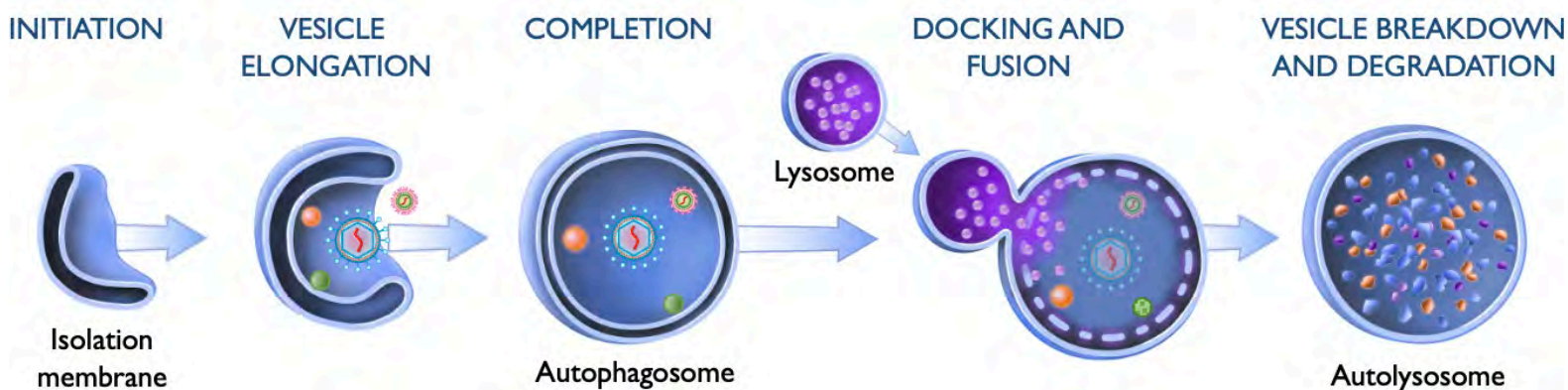
Florence Foundation creates \$1M library endowment

Fred F. Florence was an influential Dallas banker and civic leader who had a tremendous love for people and spent his lifetime enriching the community. In 1956, he established the

Florence Foundation to support religious, educational, scientific, and recreational projects to benefit humanity.

Since his death in 1960, Mr. Florence's children and grandchildren have continued to honor his legacy and drive the Foundation's philosophy of giving. The family recently decided to dissolve the Foundation with a final \$500,000 gift to Southwestern Medical Foundation. In honor of the tremendous role that Mr. Florence played in the formation, leadership, and growth of Southwestern Medical Foundation, the Foundation will secure funds to match this gift and establish a permanent \$1 million endowment for the Fred F. Florence Bioinformation Center at UT Southwestern.

Built in 1974, the Bioinformation Center was named for Mr. Florence in honor of his significant efforts to support the growth of UT Southwestern Medical School. The endowment will help grow and sustain the library as a hub of technology, creativity, and collaboration that supports the curriculum and innovative research of UTSW faculty, students, and staff.



A UT Southwestern study identified a gene used in the cellular recycling process called autophagy that rids cells of viruses. The above illustration breaks down the steps involved in this process. Credit: Angela Diehl

Autophagy Continued from page 1

HSV-1 and Sindbis viruses significantly decreased – however, their ability to activate autophagy as part of normal cellular cleaning or for bacteria removal stayed intact, suggesting that this gene is specifically used for viral autophagy. This effect persisted for several other viruses, including Zika, West Nile, chikungunya, poliovirus, Coxsackievirus B3, and influenza

A, suggesting that *SNX5* is part of a general mechanism for autophagy across a broad range of viruses.

Further experiments showed that deleting *SNX5* greatly increased susceptibility to infection in both lab-grown cells and in adult and juvenile animals. However, when these cells were infected by viruses manipulated to suppress their ability to induce autophagy, they were

largely spared.

Together, explained Dr. Dong, a 2011 alumnus of the UT Southwestern Graduate School of Biomedical Sciences, these results suggest that cells do have a unique pathway for viral autophagy that likely has *SNX5* at the helm. This finding not only solves a long-standing mystery in basic biology, he added, but it could eventually lead to new ways of fighting viral infections. Most current methods target viruses through their individual weaknesses – an approach

that necessitates developing a unique strategy for every viral type.

"By learning how cells naturally take up and degrade viruses," Dr. Dong said, "we could discover ways to augment this process, creating a more general strategy for developing broad-spectrum antiviral therapeutics that combat an array of different viral infections."

Co-leaders of this research effort were the late Dr. Beth Levine, former Director of the Center for Autophagy Research and Professor of Internal Medicine and Microbi-

ology at UT Southwestern, and Dr. Ramnik J. Xavier, M.D., the Kurt Isselbacher Professor of Medicine at Harvard Medical School and a core member of the Broad Institute of MIT and Harvard. Dr. Levine, a world-renowned leader in the study of autophagy, died in June. She also was an Investigator with the Howard Hughes Medical Institute and member of the National Academy of Sciences. At UT Southwestern, she held the Charles Sprague Distinguished Chair in Biomedical Science.

"This is a beautiful study that further cements the legacy of Dr. Levine and work from her lab members," said Dr. Julie Pfeiffer, Professor of Microbiology at UTSW and a contributor to the study.

Dr. Pfeiffer holds the Kern and Marnie Wildenthal President's Research Council Professorship in Medical Science.

More online: Read the full story on *Center Times Plus* at utsouthwestern.edu/ctplus.