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COVER IMAGE *Depiction of the human genome illustrates how UT Southwestern's commitment to advancing medicine is built into the DNA of everything we do.*

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Contents

President's Message 4

Expanding Our Reach 6

UT Southwestern is expanding on multiple fronts, opening new facilities in North Texas and creating innovative alliances that broaden our reach and amplify our impact as a national health care leader.

Enhancing Our Capabilities 20

Significant achievements this past year included the launch of the Peter O'Donnell Jr. Brain Institute, National Cancer Institute recognition, anniversary of the Dallas Heart Study, and across-the-board technological innovation.

Achieving Breakthroughs in Research 48

The exceptional work of faculty members was recognized this past year with honors from the National Academy of Sciences, American Academy of Arts and Sciences, Howard Hughes Medical Institute, The Rockefeller University, the Breakthrough Prize, and The Academy of Medicine, Engineering & Science of Texas.

Accomplishing Excellence 58

A center to study regenerative medicine was established this past year, Dr. Donald W. Seldin was honored for his legendary leadership, and Southwestern Medical Foundation celebrated 75-plus years of generous support.

In Memoriam 66

UT Southwestern mourns the loss of Nobel Laureate Dr. Alfred Goodman Gilman.

2015 Annual Review 70

New Appointments and Major Gifts — 72
Financial Statement — 76
Gift Report — 80



Dear Friends,

Within the pages of *Southwestern Medicine*, you will find reports on some of UT Southwestern Medical Center's most significant achievements of the 2014-15 academic year. We are deeply grateful for the support you have provided, which has been essential to the breadth and depth of our accomplishments and to the momentum that we are building to advance UT Southwestern as a premier academic medical center, at the forefront of biomedical research, patient care, and medical education and training.

Opening the William P. Clements Jr. University Hospital in December 2014 was a major milestone of the 2014-15 academic year, and we are very proud that the new hospital has already gained national recognition for impressive achievements in quality and safety measures.

Another major 2014-15 milestone was the designation of our Harold C. Simmons Comprehensive Cancer Center by the National Cancer Institute as a *comprehensive* cancer center – the highest distinction possible, making it one of only 45 comprehensive centers nationally and one of only three in Texas.

Extraordinary support from our philanthropic friends in the community enabled new strategic initiatives, including the launch of the Peter O'Donnell Jr. Brain Institute. The Institute is a comprehensive effort to advance understanding of the basic molecular workings of the brain and the application of these discoveries to the prevention and treatment of brain diseases and injuries, today and in the future.

We also were able to strengthen the foundation of our research enterprise through the creation of the Lyda Hill Department of Bioinformatics. This new department significantly expands the analytic capabilities available to our scientists who are seeking to gain insights from the massive data sets that are increasingly at the heart of transformative discoveries that lead to better treatment and, when possible, prevention of disease.

During this year, the footprint of the UT Southwestern Health System has continued to expand, creating increased access to UT Southwestern physicians for patients and their families in this region. This includes cancer care in Fort Worth at the Moncrief Cancer Institute and planning our first named UT Southwestern campus outside of Dallas: the UT Southwestern Monty and Tex Moncrief Medical Center at Fort Worth.

Looking ahead, in addition to continuing our efforts in all of these important initiatives, we have added the new dimension of an innovative alliance with Texas Health Resources. In the spring of this year, working together, we will be launching Southwestern Health Resources, an integrated health care network designed to provide more comprehensive access to quality health care for citizens throughout North Texas.

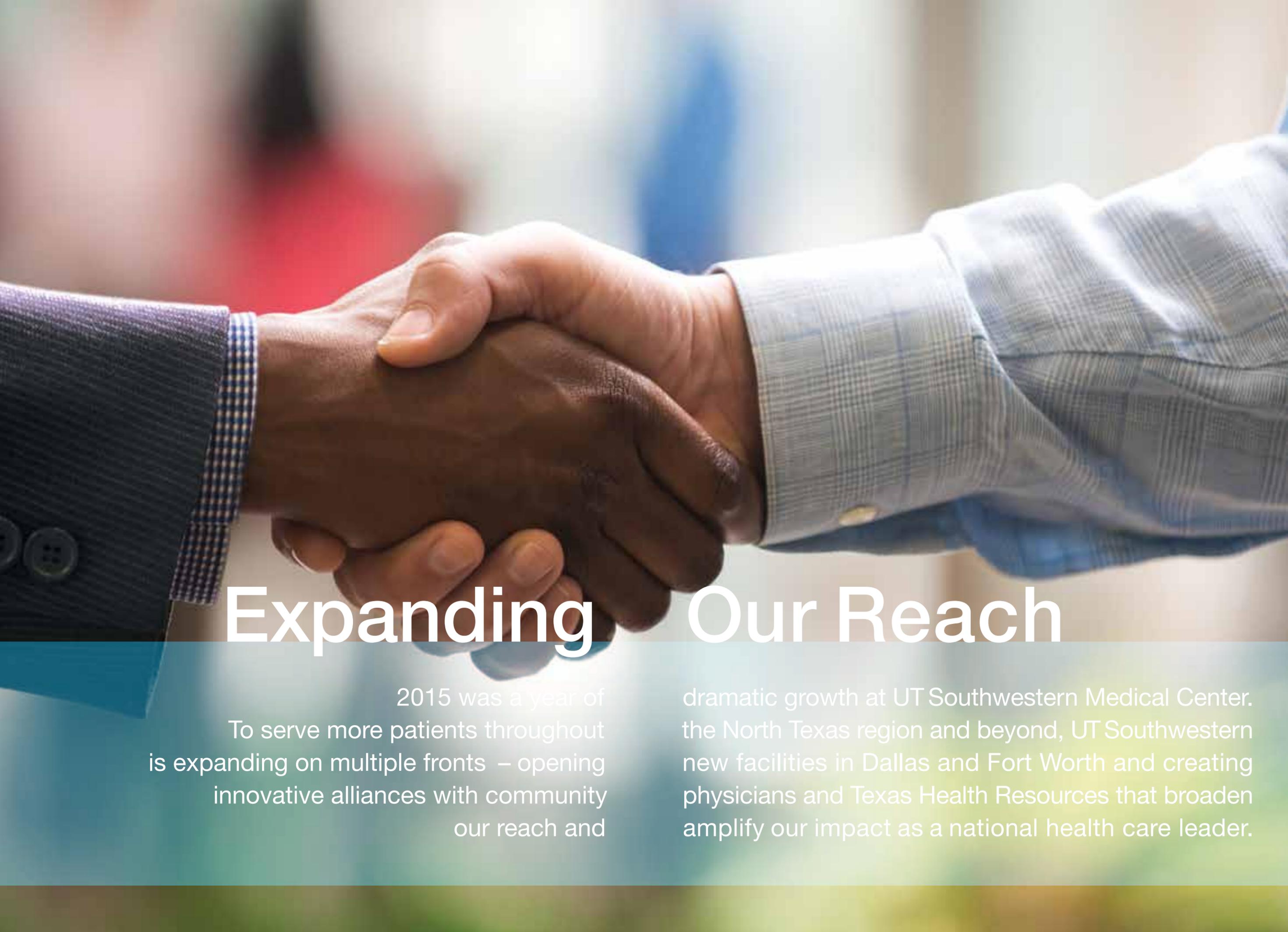
Sadly, calendar year 2015 concluded with the death of Dr. Alfred G. Gilman, whose passion for advancing medicine, as well as UT Southwestern, was unsurpassed. As a Nobel Laureate and former Dean of the Medical School, Executive Vice President for Academic Affairs and Provost, Chairman of the Department of Pharmacology, leading scientist, and mentor to hundreds throughout his 28-year career here, Dr. Gilman enthusiastically brought his unique zest and zeal for excellence to every endeavor. He will be deeply missed, but his contributions to scientific understanding, as well as his thoughtful and rigorous approach to scientific challenges, will continue to serve not only as an inspiration, but as a model for generations to come.

What follows are mere glimpses of UT Southwestern's commitment to innovation and excellence in education, research, and patient care. On behalf of the entire campus community, I thank you for your generous support and continued commitment to UT Southwestern's mission and goals.

Sincerely,

A handwritten signature in black ink, appearing to read "DK Podolsky".

Daniel K. Podolsky, M.D.



Expanding Our Reach

2015 was a year of dramatic growth at UT Southwestern Medical Center. To serve more patients throughout the North Texas region and beyond, UT Southwestern is expanding on multiple fronts – opening new facilities in Dallas and Fort Worth and creating innovative alliances with community physicians and Texas Health Resources that broaden our reach and amplify our impact as a national health care leader.

Alliances Expand UTSW's Capability, Patient Care Accessibility

In today's highly competitive health care environment, patients and payers have increasingly high expectations of health care providers. They expect greater accountability, transparency, efficiency, quality, and safety. They also prefer providers who have the depth and breadth to address the wide range of health care needs of a diverse and growing population. This evolving landscape is driving change throughout the health care industry – and at UT Southwestern.

In 2015, UT Southwestern took a major step to expand its scale and clinical capability. Backed by the endorsement of our respective oversight boards, UT Southwestern and Texas Health Resources (THR) announced the creation of Southwestern Health Resources, an integrated health care network designed to bring together the complementary strengths of each organization.

The new network, launching in the spring of 2016, will include UT Southwestern's new William P. Clements Jr. University Hospital. This innovative, state-of-the-art facility opened in December 2014, and in its first year of operation was nearly three years ahead of projections

in patient volume and financial performance. The network also includes UT Southwestern's Zale Lipshy University Hospital, as well as THR's Texas Health Presbyterian Hospital Dallas and 24 other THR community hospitals throughout North Texas.

"This new network and the other alliances we are forming broaden UT Southwestern's clinical capacity, amplify our world-class research capabilities, and expand our educational offerings to ensure that physicians and caregivers are fully prepared for the future of medicine," said Dr. Daniel K. Podolsky, President of UT Southwestern.

Dr. Daniel K. Podolsky, President of UT Southwestern (left), and Barclay Berdan, CEO of Texas Health Resources, have spearheaded the creation of an integrated regional health network to bring together the complementary strengths of each organization.



A new alliance with Texas Health Resources launching in spring 2016 – and reflected in this newswire announcement in New York City's Times Square – expands UTSW's scale and clinical capability.

He added: "As we looked ahead and evaluated our strategic approach, it became clear that this collaboration with Texas Health Resources would be the most efficient and financially responsible way to ensure that the patients of North Texas and the broader region have access to high-quality, high-value primary and specialized care."

The hospitals that constitute Southwestern Health Resources will span a broad geographical territory encompassing 16 Texas counties. The network will include physicians from UT Southwestern and THR, as well as physicians in selected affiliated independent practices that embrace the practices and data-driven quality measures used by UT Southwestern and THR.

For patients, the new network will translate into improved access to primary and specialty care at facilities that can best serve their needs.

"Both organizations share a strong commitment to improving well-being and providing the best possible care for patients at every stage of their life's journey," said Barclay Berdan, Chief Executive Officer of THR. "We expect the new network will help improve qual-

"This new network and the other alliances we are forming broaden UT Southwestern's clinical capacity, amplify our world-class research capabilities, and expand our educational offerings." – Dr. Daniel K. Podolsky

ity and enhance affordability during a time when patients, insurers, and other payers are increasingly sensitive to health care costs. But most importantly, this supports our shared mission of improving the health of the people in the communities we serve."

The Clinical Components of Southwestern Health Resources

While maintaining independent ownership of existing facilities and resources, and under the direction of an equitable 50/50 shared leadership structure between UT Southwestern and THR, the new network includes:



The network forges a strong alliance between the flagship hospitals of UTSW and THR: William P. Clements Jr. University Hospital (top) and Texas Health Presbyterian Hospital Dallas.

■ **Integrated Continuum of Physician-Driven Care:** An integrated physician network to coordinate and integrate the efforts of the more than 3,000 participating physicians. The network will encompass UT Southwestern faculty physicians, the community-based physicians in our UT Southwestern Clinically Affiliated Physicians (UTSCAP) program, physicians

in the Texas Health Physicians Group (THPG), and, under certain circumstances, independent physician groups affiliated with either UT Southwestern or THR.

■ **Integrated Hospital Network:** An integrated hospital network to focus on delivering coordinated care through UT Southwestern’s two University Hospitals and THR’s Texas Health Presbyterian Hospital Dallas and 24 community hospitals in the region. A key component of this network will be a new joint operating company to bring together the three Dallas hospitals (Clements, Zale Lipshy, and Presbyterian) under the oversight of a UT Southwestern-appointed leader.

■ **Population Health Services Company:** A population health services company to provide the necessary people, technology, and infrastructure to support both the physician network and the hospital network to achieve universal quality standards, deliver seamless care to patients across the care continuum, and provide the analytics and support necessary to be successful at population health management.

■ **Academic Affiliation:** Stronger academic affiliations that further research and educational opportunities. The expanded patient population will enhance opportunities for both clinical and translational research. It also will create more training opportunities for medical students, residents, and fellows. As part of this broad affiliation, THR will be providing significant support to enable UT Southwestern to pursue academic initiatives, including the establishment of a new center dedicated to population health research.

“With all of these components, we believe we have a road map for achieving the objectives of a robust health care system able to respond and live up to the expectations that are evolving from all stakeholders,” Dr. Podolsky said.

Network to Benefit Education and Research Missions

Although the origins of the UT Southwestern-THR partnership are in the clinical arena, the network will provide exceptional educational opportunities for students and residents. It also will pave the way for significant expansion of research opportunities. This includes allowing more patients to participate in UT Southwestern’s unique clinical trials and enabling researchers to engage in studies to improve health practices, optimize health care delivery, and tailor treatments to individual needs.

“What I am most excited about from the faculty and academic side is that there will be a considerable investment that goes along with this partnership that allows us to think about questions in terms of population health, health services and costs, and health disparities,” said Dr. J. Gregory Fitz, Executive Vice President for Academic Affairs and Provost, and Dean



Dr. J. Gregory Fitz, Executive Vice President for Academic Affairs and Provost, and Dean of UT Southwestern Medical School.

of UT Southwestern Medical School. “These are important academic imperatives as well as health care imperatives and represent opportunities for expansion.”

What the new network will not do is alter the long-standing relationships and commitments that UT Southwestern has built over decades with its other partners, including Parkland Memorial Hospital, Children’s Medical Center Dallas, and the Dallas Veterans Affairs Medical Center.

In addition, the network will not utilize any state funds provided to UT Southwestern. Although UT Southwestern is a state institution, neither its state appropriation nor funds provided by the UT System to UT Southwestern are used in direct support of its clinical facilities or services.



Dr. Bruce Meyer, Executive Vice President for Health System Affairs.

“We have collectively made remarkable progress in the growth of the UT Southwestern Health System and, even more importantly, in our quality and safety programs,” said Dr. Bruce Meyer, Executive Vice President for Health System Affairs. “The formation of Southwestern Health Resources will allow us to build on that foundation for the benefit of the UT Southwestern community and the entire population of North Texas.”



Zale Lipshy University Hospital received two major patient satisfaction awards from Press Ganey, a national firm dedicated to quality improvement and the patient experience in health care – the Pinnacle of Excellence Award and the Guardian of Excellence Award.

Growth Through Other Alliances

Although the UT Southwestern-THR initiative represents a major step in achieving growth through alliances, it follows several other successful joint efforts.

For example, the UT Southwestern Health System expanded through the creation of the UT Southwestern Clinically Affiliated Physicians (UTSCAP) program, which links community physicians with the faculty practice and resources of UT Southwestern. The Medical Center also recently established the UT Southwestern Accountable Care Network (UTSACN), a new accountable care organization involving UTSCAP.

“The hospital and physician networks created offer not only the opportunity to maintain our steady focus on quality, safety, and efficiency for our hospitals, but broaden that commitment, geographically and through the collection of better data on which to base ongoing improvement.”

– Dr. John Warner

To broaden our geographical reach, in recent years UT Southwestern has launched community clinics in Las Colinas, Richardson/Plano, and the Park Cities, along with a satellite of the Harold C. Simmons Comprehensive Cancer Center in the UT Southwestern Moncrief Cancer Institute in Fort Worth. Further expansion is planned with the development of an ambulatory clinic in Frisco and a multispecialty facility (as the first phase of development) of the UT Southwestern Monty and Tex Moncrief Medical Center at Fort Worth. (See related story on page 14.)

Maintaining Our Priorities as We Grow

As UT Southwestern expands, safety and quality remain top priorities, as evidenced by recent recognitions.

Clements University Hospital received a national Rising Star Quality Leadership award from the University HealthSystem Consortium (UHC) for its quality and safety efforts. The award recognizes significant improvements in ranking in the UHC’s annual Quality and Accountability Study, which identifies exemplary performance in patient safety, mortality, clinical effectiveness, and equity of care among more than 300 academic medical center hospitals. UT Southwestern now ranks within the top 20 nationwide.

UT Southwestern hospitals also were recognized by Press Ganey, a national firm dedicated to quality improvement and the patient experience in health care. In 2015, Zale Lipshy University Hospital received its third consecutive Pinnacle of Excellence Award,

which recognizes patient satisfaction, physician engagement, and quality, and it earned a Guardian of Excellence Award, a nationally recognized symbol of achievement in health care that honors organizations that have sustained performance in the top 5 percent of all Press Ganey clients over a year’s period in clinical quality, patient experience, employee engagement, or physician engagement. Press Ganey partners with more than 11,000 health care facilities, including more than half of all U.S. hospitals, to measure and improve patient experience.

“The hospital and physician networks created offer not only the opportunity to maintain our steady focus on quality, safety, and efficiency for our hospitals, but broaden that commitment, geographically and through the collection of better data on which to base ongoing improvement,” said Dr. John Warner, Vice President and Chief Executive Officer of UT Southwestern University Hospitals, and Professor of Internal Medicine.

“Our ambition and our commitment as an academic medical center is to ensure we remain at the frontiers of science and medicine,” Dr. Podolsky said. “We do that by dedicating ourselves to excellence and innovation in patient care, enhancing our abilities in basic, translational, and clinical research, and ensuring that those we train have the diversity of experience and exposure to adapt to the evolving future of health care. The integrated network

we announced with Texas Health Resources in 2015 – and the other alliances we’re forming – represent vital avenues to deliver on that promise.”

Dr. Fitz holds the Nadine and Tom Craddock Distinguished Chair in Medical Science, and the Atticus James Gill, M.D. Chair in Medical Science.

Dr. Meyer holds the T.C. Lupton Family Professorship in Patient Care, in Honor of Dr. John Dowling McConnell and Dr. David Andrew Pistenmaa.

Dr. Podolsky holds the Philip O’Byrne 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 Audre and Bernard Rapoport Chair in Cardiovascular Research.

Dr. Bruce Meyer (left) and Dr. John Warner have been focused on broadening UT Southwestern’s clinical programs geographically as well as qualitatively through innovative health care alliances and an emphasis on quality, safety, and efficiency in hospitals and clinics.



A Growing Presence in Fort Worth

Since the Moncrief Cancer Institute launched just after World War II as one of the first cancer centers in the nation and the first in the Southwest to pioneer community radiation therapy, expansion has been a constant.

That growth continued in 2015, with a watershed moment coming in August when the creation of the UT Southwestern Monty and Tex Moncrief Medical Center at Fort Worth was announced. The Center, located in the heart of Fort Worth's burgeoning medical district, was made possible by an extraordinary \$25 million commitment from W.A. "Tex" Moncrief Jr. and is UT Southwestern's first named campus outside of Dallas.

This new Center will build on UT Southwestern's recent expansion at the nearby Moncrief Cancer Institute, which reflects the generosity and foresight of W.A. "Monty" Moncrief, his son W.A. "Tex" Moncrief Jr., and the rest of the Moncrief family.

These expansions strengthen the Medical Center's depth and its capacity to serve residents of Fort Worth and surrounding areas, while improving patient access to UT Southwestern's medical care, research, and educational opportunities.

"Connected with our objective to improve and help meet the health care needs of North Texas, expanding our ability to provide the community of Fort Worth more convenient access to UT Southwestern clinical care is a high institutional priority," said Dr. Daniel K. Podolsky, President of UT Southwestern. "We are delighted and privileged to be a part of the growing Fort Worth medical community, made possible through the long-standing support and vision of the Moncrief family.

"In the years ahead, their remarkable generosity will support the development of a multidisciplinary outpatient facility programmed specifically to meet the medical needs of the area, while our new clinical expansions at the Moncrief Cancer Institute – also thanks to the Moncrief family – enable us to extend the full backing and advantage of the region's only National Cancer Institute-designated comprehensive cancer center in North Texas."

In May, UT Southwestern's Harold C. Simmons Comprehensive Cancer Center, which in 2015 was recognized with the NCI's top comprehensive status designation, brought its world-class advances in clinical cancer care and research to residents of Tarrant County



Dr. Daniel K. Podolsky announced the opening of the Harold C. Simmons Comprehensive Cancer Center Fort Worth, a satellite facility at the Moncrief Cancer Institute. Since then, plans were announced to launch the UT Southwestern Monty and Tex Moncrief Medical Center at Fort Worth on nearby land. Both facilities are part of a continuing effort to expand UTSW's reach.

and 10 surrounding counties through a new satellite facility called the Harold C. Simmons Comprehensive Cancer Center Fort Worth. Dedication ceremonies included congratulations and comments from Fort Worth Mayor Betsy Price.

"For the Center to be here, it's great for the city, great for the patient, and great for the physician," Mayor Price said. "We have an incredible medical district already, and this is icing on the cake that really brings that next level of medical care to us."

Among the advantages the facility offers is the ability to make the latest clinical trials more readily available to Fort Worth residents.

"They're doing the cutting-edge research that is giving us hope every day," cancer survivor Charles Florsheim said. "If you want to live and have a good chance of survival, then you need cutting-edge care."

Encompassing more than 22,500 square feet in the expanded Moncrief Cancer Institute, the Simmons Cancer Center Fort Worth is specially designed to enhance the patient's experience with exam space, state-of-the-art imaging capabilities, on-site lab and pharmacy services, and 14 all-private infusion rooms for chemotherapy that are a first for Fort Worth. The Center also is able to provide secure telemedicine links directly to the Simmons Cancer Center in Dallas, enabling expert consultations and secured access to electronic medical records while extending the reach of oncologists, surgeons, and bone marrow transplant specialists at UT Southwestern's William P. Clements Jr. University Hospital and radiation oncologists at the W.A. Monty & Tex Moncrief Radiation Oncology Building.

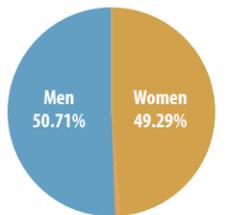


The need for these services is clear. The Texas Cancer Registry estimated Tarrant County alone saw more than 7,800 new cases of cancer in 2015.

“The care being made available at these new facilities is important in delivering on our commitment to provide the patients of this region with UT Southwestern expertise, as well as extending our institutional research and education missions,” Dr. Podolsky said.

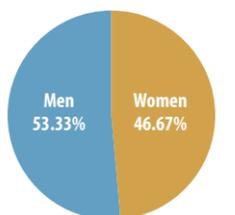
Dr. Keith Argenbright, Director of UT Southwestern’s Moncrief Cancer Institute, noted the clinical focus of the new services provides a valuable addition to the Institute’s mission and to the Fort Worth health care community.

“The community outreach, survivor care and counseling, and mobile mammography services that the Moncrief Cancer Institute historically provided have proved to be important components of improving access to quality health care throughout Tarrant County and adjoining communities. These new offerings represent an exciting evolution of that mission,” said Dr. Argenbright, who also is Professor of Clinical Sciences and a member of the Simmons Cancer Center.



Expected new cancer cases in Tarrant County in 2015

Total: 7,842
Male: 3,977
Female: 3,865



Expected cancer deaths in Tarrant County in 2015

Total: 2,775
Male: 1,480
Female: 1,295

Source: Texas Cancer Registry, based on latest available estimates from the Texas Department of State Health Services

Supporting Cancer Survivors and the Underserved

In February 2015, the Simmons Cancer Center and Moncrief Cancer Institute debuted a Mobile Cancer Survivor Clinic. The custom-designed, \$1.1 million, fully equipped 18-wheeler is the first of its kind and delivers follow-up and screening services to cancer survivors in their communities.

The mobile clinic offers 3-D mammography, colon cancer screenings, private exam rooms, exercise facilities for one-on-one training, and high-speed telemedicine links to cancer experts and counseling services at the Moncrief Cancer Institute in Fort Worth and Simmons Cancer Center in Dallas. The bilingual cancer survivor services target nine

rural North Texas counties covering more than 7,000 square miles. The traveling clinic serves Tarrant, Parker, Wise, Hood, Erath, Somervell, Johnson, Ellis, and Navarro counties – a region in which 55 percent of the population is considered medically underserved and where one-third of cancer survivors are considered at-risk of failing to adhere to essential follow-up care due to the lack of facilities, lack of transportation, and other factors.

Helping to address the needs of this community, the Cancer Prevention and Research Institute of Texas (CPRIT) awarded the largest prevention grant in its history to Moncrief Cancer Institute to provide colon cancer screenings at no cost to the underserved in Tarrant and surrounding counties.

This expanded commitment to health care in Fort Worth reflects the mission of the original Radiation Center that became Moncrief Cancer Institute to ensure that residents in Fort Worth and surrounding areas have direct access to world-class medical care and facilities.

“My family has been touched by cancer, and we take the fight against cancer very personally and very seriously,” said W.A. “Tex” Moncrief Jr., President of the William A. and Elizabeth B.

Dr. Keith Argenbright, Director of UT Southwestern's Moncrief Cancer Institute, provides a tour of the Mobile Cancer Survivor Clinic, which will serve cancer survivors in nine rural North Texas counties.



The Mobile Cancer Survivor Clinic provides the following cancer screening services:

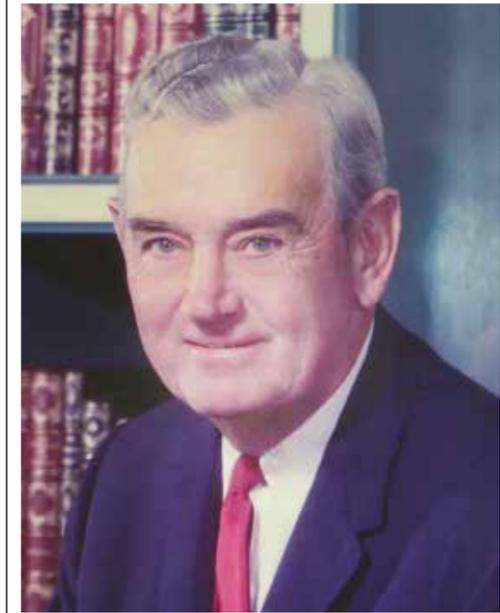
- 3-D mammography
- Colon cancer screenings
- Private exam rooms
- Exercise facilities
- Telemedicine links to cancer experts and counselors

Moncrief Foundation, in a 2013 announcement on the expanded Moncrief Cancer Institute. “We want to defeat this horrible disease while ensuring our community has every resource necessary to offer the best cancer care and treatment for our fellow citizens. With this expansion of services and our continued affiliation with UT Southwestern, we are confident both goals will be achieved.”

The Continuing Moncrief Legacy

The original Radiation Center began treating patients in August 1958, but got a significant boost in 1966 with a generous contribution by Mr. and Mrs. W.A. “Tex” Moncrief Jr. and a matching federal grant that funded an expansion of the facility. Within a decade, the Center became one of the top radiation facilities in the Southwest, and an additional donation of \$2.5 million by the Moncriefs led to another major expansion in 1979.

Based on the continued generosity and guidance from the Moncrief family, the new Center was dedicated as the Moncrief Radiation Center in 1980. In 1999, administration was transferred to UT Southwestern, which broadened the scope of services. In 2010, the nonprofit organization changed its name to Moncrief Cancer Institute and in 2012, thanks to an extraordinary \$20 million gift from the Moncrief family, moved into its current 60,000-square-foot facility located in Fort Worth on a 3.4-acre site at 400 W. Magnolia Ave.



Generous donations by W.A. “Monty” Moncrief (top) and his son, W.A. “Tex” Moncrief Jr., have helped fund expansions of the Moncrief Cancer Institute.

“It is our hope that the community of Fort Worth sees UT Southwestern as much a part of that community as it has been a part of the Dallas community,” Dr. Podolsky said.

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

Evolution of a Fort Worth footprint

1958 Original Radiation Center in Fort Worth opens

1966 W.A. “Tex” Moncrief Jr. matches a federal grant to expand the center

1979 \$2.5 million gift from the Moncriefs kicks off second major expansion

1980 Facility is renamed the Moncrief Radiation Center

1999 Administration of the Moncrief Center is transferred to UT Southwestern

2010 Facility is renamed the Moncrief Cancer Institute

2012 \$20 million gift from the Moncriefs funds new, larger building



Enhancing Our Capabilities

Recognition of breakthrough discoveries by Laureates, speaks to UT Southwestern's and scientific research. Building upon that capabilities – from bolstering expertise Peter O'Donnell Jr. Brain Institute to establishing with achievement of the National Cancer Research and clinical advances vascular programs, while across the board,

distinguished faculty, including that of our Nobel esteemed reputation as a leader in medical foundation, efforts this past year strengthened in the neurosciences with the launch of the a reputation as a top cancer treatment center Institute's highest cancer center designation. expanded UTSW's expertise in heart, lung, and technological innovation drove all of these efforts.

Multidisciplinary Approach of Peter O'Donnell Jr. Brain Institute Bolsters UT Southwestern's Expertise in Neurosciences

Building upon UT Southwestern's long-standing leadership in neuroscience research and clinical care, a transformative \$36 million gift from the O'Donnell Foundation last year led to the creation of the Peter O'Donnell Jr. Brain Institute.

As part of a key strategic priority for UT Southwestern, the Peter O'Donnell Jr. Brain Institute at UT Southwestern is weaving together basic and clinical neurosciences efforts across multiple departments, clinics, and laboratories and identifying collaborative opportunities with other established centers at the University. This will provide a comprehensive, multidisciplinary approach to research and clinical care in the neurosciences, while educating tomorrow's scientists and physicians. The result will be an all-encompassing initiative dedicated to better understanding the basic molecular



Edith and Peter O'Donnell Jr. provided a transformative \$36 million gift that established the Peter O'Donnell Jr. Brain Institute at UT Southwestern.

workings of the brain and applying these discoveries to the prevention and treatment of brain diseases and injuries.

Simultaneously, through investments in advanced technology and multidisciplinary clinical programs, UT Southwestern is positioning Zale Lipshy University Hospital to provide exceptional care for patients with brain disorders.

Ambulatory care will be centered in the James W. Aston Ambulatory Care Center but also will be provided by physicians located in the Charles Cameron Sprague Clinical Science Building, the Paul M. Bass Administrative and Clinical Center, and Professional Office Buildings 1 and 2.

"The Institute will serve as the umbrella to bring together the Medical Center's advances in basic research and therapeutic care," said Dr. Daniel K. Podolsky, President of UT Southwestern. "The support of the O'Donnell Foundation recognizes that one of the greatest challenges of our time is brain-related illness in its various forms. The gift enables UT Southwestern to accelerate progress in injury prevention, novel brain preservation strategies, and restoration of brain function lost by disease and injury."

The Institute builds upon UT Southwestern's extensive expertise in the neurosciences, with a contingent of nationally recognized scientists and significant discoveries in areas ranging from circadian rhythms that control wake-sleep cycles to promising research to find a cure for Alzheimer's disease.

UT Southwestern's clinical leadership includes top scientists and clinicians covering the full range of brain injuries, neurodegenerative diseases, depression and psychiatric disorders, migraines, and spine, nerve, and muscle diseases. Others include voice specialists, rehabilitation experts, and neuroimmunologists, plus numerous basic and translational scientists in cellular and molecular neuroscience, neurobiology, regenerative medicine, neuro-engineering, imaging, and genetics.

"UT Southwestern's enormous talent in neuroscience and neurotechnology provides an important opportunity to invest in this critical field," Peter O'Donnell Jr. said at the time the Institute was announced. "The Medical Center consistently tackles some of the most difficult scientific challenges with enormous success, benefiting patients today and patients for generations to come. I have every confidence that the field of neuroscience will



Zale Lipshy University Hospital will serve as the clinical centerpiece of the Peter O'Donnell Jr. Brain Institute.

"UT Southwestern's enormous talent in neuroscience and neurotechnology provides an important opportunity to invest in this critical field." – Peter O'Donnell Jr.

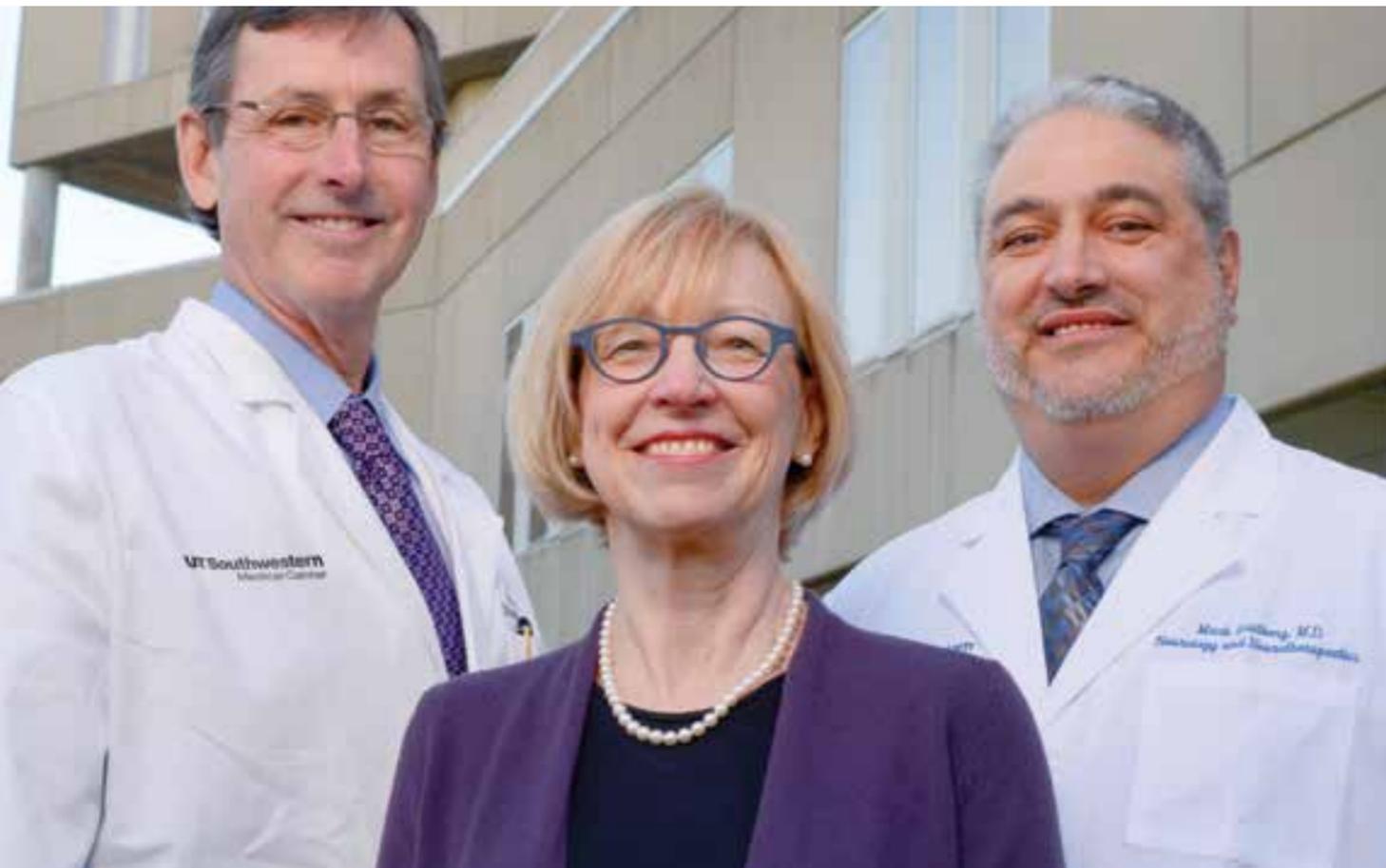
make great strides at UT Southwestern. I look forward to seeing the next discoveries that are made and meeting the next extraordinary scientists and researchers who will be recruited to the Brain Institute."

Edith and Peter O'Donnell Jr. believe that talent is the driving force that has helped build a great academic medical center in Dallas – talent that will grow it even further in the future. The O'Donnell Foundation has supported some of the most important research undertaken at UT Southwestern. In the 1980s, the O'Donnell Foundation provided funds to support the research of Nobel Laureates Drs. Joseph Goldstein and Michael Brown. The Foundation continues to support the work of UT Southwestern's Nobel Laureates and the many members of the National Academy of Sciences and the National Academy of

Medicine with roots at UT Southwestern. In addition, to help ensure financial support for UTSW to train and mentor the next generation of medical scientists, the O'Donnell Foundation created the Endowed Scholars Program in Medical Science.

The Peter O'Donnell Jr. Brain Institute is organized into the following major service lines that integrate basic and translational research with clinical care, while also offering opportunities to educate and train future caregivers:

Dr. Hunt Batjer, Chair of Neurological Surgery (left), Dr. Kathleen Bell, Chair of Physical Medicine and Rehabilitation (center), and Dr. Mark Goldberg, Chair of Neurology and Neurotherapeutics (right), lead UT Southwestern Medical Center's Texas Institute for Brain Injury and Repair.



■ **Acute Brain Injury:** Covers traumatic brain injury, brain tumors, and cerebrovascular disease.

■ **Neurodegenerative Diseases:** Covers Alzheimer's, memory, and cognition diseases; movement disorders; neuroimmunology and multiple sclerosis; and other neurodegenerative diseases, such as Lou Gehrig's (ALS), Huntington's, and Parkinson's diseases.

■ **Functional and Developmental Diseases:** Covers the Center for Depression Research and Clinical Care and psychiatric diseases; epilepsy; autism and developmental disabilities; a new sleep and circadian center; headache and pain-related diseases; neurogenetic disorders; systems neuroscience; and cellular and molecular neuroscience.

■ **Spine, Nerve, and Muscle:** Covers the Spine Center; muscle disorders; otolaryngology and the Clinical Center for Voice Care; nerve disorders; ophthalmology; and orthopaedics.

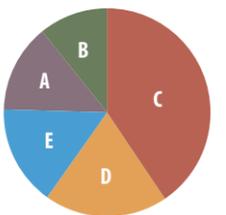
The O'Donnell Brain Institute will tap into institutional technology centers such as the Advanced Imaging Research Center, the Lyda Hill Department of Bioinformatics, and the Whole Brain Microscopy Facility. The Microscopy Facility features two TissueCyte 1000 microscopes that are the only ones of their kind in Texas and among just a handful in existence worldwide. The microscopes will be used in traumatic brain injury and neurodegenerative diseases research.

The Institute also will coordinate clinical, translational, and basic science research programs involving multiple disciplines in the areas of neurodegeneration, neuromodulation, neurorepair, and neuro-oncology. The following UTSW centers, among others, will be central to these collaborative efforts:

UT Southwestern's Texas Institute for Brain Injury and Repair: A state-funded initiative to promote innovative research and education, with the goals of accelerating translation into better diagnosis and revolutionizing care for millions of people who suffer brain injuries each year. (See related story on page 28.)

The Center for Depression Research and Clinical Care, led by Dr. Madhukar Trivedi, was established with a \$5 million lead gift from The Hersh Foundation last year. The Center combines basic research, translational clinical genetics research, functional brain imaging, and treatment of patients of all ages for depression, bipolar disorder, and related conditions, with a special focus on resistant, chronic, or recurrent depression. Dr. Trivedi also is Professor of Psychiatry and Chief of UT Southwestern's nationally recognized Division of Mood Disorders.

Leading causes of traumatic brain injury, according to the Centers for Disease Control and Prevention



- A – 14.3% Motor vehicle accidents
- B – 10.7% Assaults
- C – 40.5% Falls
- D – 19% Unknown/Other
- E – 15.5% Unintentional blunt trauma

The Robert D. Rogers Advanced Comprehensive Stroke Center is the only stroke center in North Texas with joint certification by The Joint Commission and American Heart Association/American Stroke Association as an Advanced Comprehensive Stroke Center. The Center's world-renowned team of neurosurgeons uses advanced surgical and imaging techniques to treat stroke patients.

The Alzheimer's Disease Center, directed by Dr. Roger Rosenberg and funded by the National Institute on Aging, evaluates patients and conducts scientific investigation into brain changes associated with healthy aging, mild cognitive impairment, Alzheimer's disease, and other cognitive disorders, such as frontotemporal dementia. The work of Dr. Rosenberg, also Professor of Neurology and Neurotherapeutics and Physiology, includes efforts to create the first Alzheimer's vaccine.

The Center for Alzheimer's and Neurodegenerative Diseases, directed by Dr. Marc Diamond, was created in 2014 to find therapies to cure or halt the progression of dementia and related disorders. A therapeutic antibody co-developed by Dr. Diamond, Professor of Neurology and Neurotherapeutics, is now entering clinical trials for treatment of dementia.

The Center for Translational Neurodegeneration Research, led by Dr. Joachim Herz, currently focuses on the study of apolipoprotein E (ApoE) receptors, which affect how strongly nerve cells interact



Dr. Joachim Herz, Professor of Molecular Genetics, Neurology and Neurotherapeutics, and Neuroscience, directs the Center for Translational Neurodegeneration Research.

with each other. When mutated, these receptors correlate with Alzheimer's disease. Dr. Herz is also Professor of Molecular Genetics, Neurology and Neurotherapeutics, and Neuroscience.

The Annette G. Strauss Center for Neuro-Oncology, led by Dr. Bruce Mickey, serves as the cornerstone of UT Southwestern's Neuro-Oncology Program. This effort focuses on improving treatments and researching tumors of the central nervous system, including benign and malignant brain and spinal cord tumors. Dr. Mickey also is Professor and Vice Chair of Neurological Surgery.

The Center for Autism and Developmental Disabilities, a collaboration between UT Southwestern and Children's Health, is led by Dr. Carol Tamminga, Chair of Psychiatry. The Center is a comprehensive, multidisciplinary clinic offering evaluation and diagnosis alongside the latest research efforts in autism for individuals up to age 21.

All of these efforts, as part of the new Peter O'Donnell Jr. Brain Institute, aim to advance our understanding of brain diseases and injury – from causes to investigation of potential new therapies. The ultimate goal is to improve treatment or, better yet, prevent such illnesses and injuries from ever occurring.

Dr. Batjer holds the Lois C.A. and Darwin E. Smith Distinguished Chair in Neurological Surgery.

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

Dr. Bell holds the Kimberly-Clark Distinguished Chair in Mobility Research.

Dr. Diamond holds the Distinguished Chair in Basic Brain Injury and Repair.

Dr. Goldberg holds the Linda and Mitch Hart Distinguished Chair in Neurology.

Dr. Goldstein, Chairman of Molecular Genetics, is a Regental Professor who holds the Julie and Louis A. Beecherl, Jr. Distinguished Chair in Biomedical Research, and the Paul J. Thomas Chair in Medicine.

Dr. Herz holds the Thomas O. and Cinda Hicks Family Distinguished Chair in Alzheimer's Disease Research.

Dr. Mickey holds the William Kemp Clark Chair of Neurological Surgery.

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. Rosenberg holds the Abe (Brunky), Morris and William Zale Distinguished Chair in Neurology.

Dr. Tamminga holds the Lou and Ellen McGinley Distinguished Chair in Psychiatric Research, and the Communities Foundation of Texas, Inc. Chair in Brain Science.

Dr. Trivedi holds the Betty Jo Hay Distinguished Chair in Mental Health.

Dr. Marc Diamond, Professor of Neurology and Neurotherapeutics, directs the Center for Alzheimer's and Neurodegenerative Diseases.





The Institute is a state-funded initiative to promote innovative research and education and to accelerate the translation of that research into better diagnosis and care for millions of people who suffer brain injuries each year.

Preventing or minimizing concussion-related injury is one area where researchers especially hope to make an impact. As such, the Texas Institute for Brain Injury and Repair, known informally as TIBIR, last year set up the

Dr. Hunt Batjer (left), Chair of Neurological Surgery and co-leader of UT Southwestern's Texas Institute for Brain Injury and Repair, listened as former NFL coach and Hall of Fame linebacker Mike Singletary spoke during a concussion presentation to about 500 youth football coaches in July 2015.

nation's first concussion registry for student athletes aimed at improving treatment.

The registry, called CON-TEX, will capture comprehensive, longitudinal data on children and adults who have suffered sports-related concussions or other forms of mild traumatic brain injury (TBI) – no small task considering an estimated 3.8 million recreational and athletic concussions occur in the United States each year. CON-TEX is a collaboration involving health care professionals in neuropsychology, physical medicine and rehabilitation, neurology and neurotherapeutics, neurological surgery, pediatrics, psychiatry, and sports medicine at UT Southwestern, Children's Medical Center Dallas, Texas Scottish Rite Hospital for Children, and Texas Health Ben Hogan Sports Medicine.

Texas Institute for Brain Injury and Repair Brings Comprehensive Approach to Neurosciences Specialty

Since governmental, community, and health care leaders united in 2014 to launch UT Southwestern's Texas Institute for Brain Injury and Repair, Institute researchers have reported new findings on potential long-term consequences of concussions, initiated one of the nation's first concussion registries for student athletes, provided pilot grants for several studies involving basic and clinical research, and helped establish a brain imaging facility with next-generation microscopes that are among only a handful of their kind in the world.

“There is so much we do not know about concussion. We need to study the history of concussions, obtain information about how and where they take place, and then design rigorous clinical research on treatment,” said Dr. Munro Cullum, Professor of Psychiatry and Neurology and Neurotherapeutics, and Principal Investigator for the CON-TEX study. “Our long-term goal is a better understanding of concussion, its risks, treatment, and prevention, not just in student athletes, but for people in all stages of life.”

In connection with the launch, last fall the Institute hosted “Concussions – Finding Answers to Manage Risk, Evaluate, and Treat Them,” a symposium for coaches, trainers, student athletes, and parents, featuring Pro Football Hall of Famer Mike Singletary and key UTSW faculty members. Attendees received practical advice and information about concussion symptoms, treatment, and research efforts. The program also aimed to engage the public to help with research by participating in clinical trials and registries. Knowledge from these studies will guide best practices to improve the long-term health of student and adult athletes in Texas and beyond.

The Institute, which is led by Dr. Hunt Batjer, Chair of Neurological Surgery, Dr. Mark Goldberg, Chair of Neurology and Neurotherapeutics, and Dr. Kathleen Bell, Chair of Physical Medicine and Rehabilitation, is a collaborative initiative involving local and national organizations, including the National Institutes of Health, UT Dallas and its Center for BrainHealth, Children's Medical Center Dallas, Dallas VA Medical Center, and Parkland Health & Hospital System, as well as

Texas Health Resources and its Texas Health Ben Hogan Sports Medicine. The Institute also has ties to the Department of Defense and the NFL, which have a strong commitment to improving brain injury research and care.

“From its conception, the initiative has been designed to involve the entire community, from patients and parents to scientists and caregivers,” said Dr. Batjer, who also co-chairs the NFL's Head, Neck, and Spine Committee.

The NFL affiliation was instrumental to a TIBIR-related study involving former professional football players who lost consciousness due to concussion during their playing days. These players showed key differences in brain structure later in life, according to the study published in *JAMA Neurology*. Specifically, re-

“From its conception, this initiative has been designed to involve the entire community, from patients and parents to scientists and caregivers.” – Dr. Hunt Batjer

searchers found the hippocampus, a part of the brain involved in memory, was smaller in 28 former NFL players as compared with a control group of men of similar age and education.

“While we found that aging individuals with a history of concussion and loss of consciousness showed smaller hippocampal volumes and lower memory test scores, the good news is that we did not detect a similar relationship among subjects with a history of concussion that did not involve loss of consciousness, which represents the vast majority of concussions,” said Dr. Cullum, co-author of the study.

According to the CDC, signs of a concussion may include:

- Can't recall events prior to or after a hit or fall.
- Appears dazed or stunned.
- Forgets an instruction, is confused about an assignment or position, or is unsure of the game, score, or opponent.
- Moves clumsily.
- Answers questions slowly.
- Loses consciousness (even briefly).
- Shows mood, behavior, or personality changes.

In other work, TIBIR researchers found that stopping production of new neurons in the brain in animal studies following traumatic brain injury can reduce epileptic seizures, cognitive decline, and impaired memory. Brain injury stimulates the production of new neurons, but these new cells are sometimes overly excitable, disrupting neural circuits and causing seizures. In genetically modified mice, stopping new neuron development resulted in fewer seizures and less cognitive side effects.

To foster more such pioneering research, last year TIBIR awarded pilot grants to support studies about the cellular, systems, and functional mechanisms of brain damage and recovery, including:

- A study of aberrant neurogenesis, which means formation of faulty neurons. This process contributes to the disruption of normal circuits and may cause post-traumatic epilepsy, recurrent seizures, or memory problems.
- An effort to reprogram certain glial cells (cells that surround and provide support to neurons) into functional neurons for brain regeneration and repair.
- A study to assess the effects of rotational brain injury and evaluate new treatments for this type of injury.
- A study to better understand damage to white matter (the deep tissues of the brain that contain nerve fibers) and to test the efficacy of vagal nerve stimulation in TBI recovery.
- A novel study of bull riders and indirect head injury to provide a better understanding of whiplash-type brain injury.

State-of-the-art technology aids these research efforts. Last year, TIBIR acquired a pair of TissueCyte 1000 microscopes, the latest genera-

tion in serial two-photon laser imaging, as a centerpiece of a new Whole Brain Microscopy Facility. The TissueCyte microscopes are the only ones of their kind in Texas, and two of just a handful in existence worldwide; they will be a major resource for scientists researching traumatic brain injury and neurodegenerative diseases such as Alzheimer's, Parkinson's, Huntington's, and Lou Gehrig's diseases. The microscopes can help reveal both healthy and damaged neuronal connections, allowing researchers to evaluate potential therapies.

"The brain is composed of billions of neurons concentrated in a small space and connected in really complicated ways," said Dr. Julian Meeks, Assistant Professor of Neuroscience and Director of the Whole Brain Microscopy Facility. "Mapping these connections has been the subject of neuroscientists' dreams and nightmares since the late 1800s."

TIBIR's efforts include an intense focus on novel therapeutic advances for treating brain injury, drawing on the group's depth of technology advances, innovative research, and exemplary patient care to create a unique collaboration that will enhance the treatment and diagnosis of brain injuries.

"To make desperately needed strides in this arena, we must continue to expand the depth of our expertise across the spectrum of pediatric and adult neurosciences," Dr. Goldberg said.

Dr. Batjer holds the Lois C.A. and Darwin E. Smith Distinguished Chair in Neurological Surgery.

Dr. Bell holds the Kimberly-Clark Distinguished Chair in Mobility Research.

Dr. Cullum holds the Pam Blumenthal Distinguished Professorship in Clinical Psychology.

Dr. Goldberg holds the Linda and Mitch Hart Distinguished Chair in Neurology.



(Left to right) UT Southwestern President Dr. Daniel K. Podolsky; Dr. John Burruss; Dr. Madhukar Trivedi; Dr. Andrew Keller, CEO of Meadows Mental Health Policy Institute; and Dr. Larry Thornton join Julie and Kenneth Hersh (right) of The Hersh Foundation, which promotes mental health and cultivates future leaders.

Neurosciences: Tackling Depression

Depression – a psychiatric disorder that affects 16 million Americans annually and can impact every aspect of a person's life – may be one of the most challenging conditions to treat effectively.

No blood tests are currently available to diagnose or determine the best treatment for an individual patient. Additionally, not all treatments work the same for everyone, leading to a trial-and-error process in treatment selection. Furthermore, some people respond quickly, while it may take weeks, months, or even years for others before the therapeutic approach best suited to a person is identified.

Julie Hersh understands these challenges. President of The Hersh Foundation, she detailed her own struggles with depression in the book *Struck by Living: From Depression to Hope*, and became a national advocate for public education and research on depression. But

she did not stop there. The Hersh Foundation, established in 1997 by Julie and her husband Kenneth Hersh, made a \$5 million lead gift last year to Southwestern Medical Foundation to help establish the Center for Depression Research and Clinical Care at UT Southwestern, as well as to endow the Julie K. Hersh Chair in Depression Research and Clinical Care.



Julie Hersh, President of The Hersh Foundation, celebrated the launch of the Center for Depression Research and Clinical Care at UT Southwestern Medical Center.



Dr. Madhukar Trivedi, Professor of Psychiatry and Chief of the Division of Mood Disorders, directs the Center for Depression Research and Clinical Care at UT Southwestern.

VitalSign6: Making Screening for Depression the Sixth Vital Sign is an easy-to-use, comprehensive program for the identification and treatment of depression in primary care clinics. The program utilizes an innovative Web-based iPad application, VS6, to administer measurement-based care (MBC) assessments to patients during the triage process.

Spurred by the vision of eliminating the burden of these disorders, faculty associated with the Center aim to accelerate discoveries into the causes of and treatment for depression, bipolar disorder, and related conditions. The Center is led by Dr. Madhukar Trivedi, Professor of Psychiatry and Chief of UT Southwestern's nationally recognized Division of Mood Disorders.

"Just as with breast cancer, the best approach for depression, bipolar, and related disorders would be to diagnose early and find the most appropriate treatment. Late reaction results in massive collateral damage – problems at work, familial strife, and even suicide," said Mrs. Hersh, a board member of Southwestern Medical Foundation who also served on the advisory board to develop the Center. "Dr. Trivedi and UT Southwestern are uniquely qualified to craft a more scientific approach for early detection and personalized treatment."

Dr. Trivedi has led national research efforts to identify biological and clinical features that are associated with the best results for each patient. Knowing this helps doctors and patients to select treatments that will work.

"One of the biggest challenges is to quickly match people with one of the 35-plus treatments we have available. Right now, we go through a trial-and-error process," said Dr. Trivedi, who received the 2015 American Psychiatric Association Award for Research, the Association's most significant research award.

He is currently leading a multicenter, National Institutes of Health (NIH)-supported study called EMBARC, which stands for Establishing Moderators and Biosignatures of Antidepressant Response for Clinical Care. The five-year study, launched in 2012, is examining clinical and biological markers. Participants undergo magnetic and electroencephalographic brain imaging and blood, DNA, hormonal, chemical, cognitive, and behavioral tests.

"We'll treat people and follow each of them for two years to see if we can learn how best to match their biology with treatment. We hope to establish a signature for each individual patient and speed up recovery for each patient with depression," Dr. Trivedi said.

At UT Southwestern, finding better treatments is achievable thanks to the Center for Depression Research and Clinical Care that has one of the strongest programs in the nation for mood disorders research and treatment. Investigators in molecular psychiatry and basic neuroscience generate significant findings related to how specific genes, proteins, and brain mechanisms may contribute to depression and bipolar disorder. Particular emphasis is placed on understanding the mechanisms by which antidepressant treatments work.

"The possibilities for significant advances in the understanding of depression and bipolar disorders have never been greater," said Dr. Daniel K. Podolsky, President of UT Southwestern. "The Hersh Foundation's generous gift supports the next important step – finding the biological foundations that can help us design more effective diagnoses and treatments tailored to an individual's needs, and, just as importantly, finding the means to predict who will suffer from depression."

One of the Center's latest projects is an iPad-based program called VitalSign6 that helps primary care physicians identify patients with depression. The application allows physicians to bring a much-needed, measurement-based approach to patients during the triage process, thus making screening and tracking for depression the "sixth vital sign" after body temperature, pulse rate, respiration rate, blood pressure, and pain. The assessments identify depressive symptoms, antidepressant treatment side effects, and adherence to treatments, all with the goal of returning the patient to wellness.

This effort builds upon earlier, landmark studies by UT Southwestern. In a benchmark study, Dr. Trivedi led the largest nationwide investigation of treatment for major depressive disorder, funded by the National Institute of Mental Health. From 2000 to 2006, the Sequenced Treatment Alternatives to Relieve Depression Study, called STAR*D, tracked more than 4,000 patients at 41 primary care and psychiatric clinics across the country. As a result, step-by-step guidelines used by clinicians around the world were established for measuring and treating depression symptoms.

Dr. Trivedi also has pioneered studies into exercise as a therapy for depression. The Treatment with Exercise Augmentation for Depression (TREAD) study confirmed aerobic exercise was an effective treatment for patients with major depressive disorder. He and his team also were able to identify proteins in blood cells that may predict the effectiveness of exercise on depression. Now Dr. Trivedi is studying several brain-based mechanisms as possible biomarkers of depression and as a guide for treating depression with exercise.

"These cutting-edge biomarker studies are beginning to help us develop blood and brain tests and speed the process of treatment matching for depression, bipolar, and related disorders," Dr. Trivedi said. "It is important to keep in mind that a comprehensive approach is needed to achieve recovery and may involve a combination of treatment strategies. We should stop asking, 'Is it medications?' or 'Is it psychotherapy?' The question should be, 'What types of treatments are necessary for recovery for each individual?'"

"We'll treat people and follow each of them for two years to see if we can learn how best to match their biology with treatment." – Dr. Madhukar Trivedi

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. Trivedi holds the Betty Jo Hay Distinguished Chair in Mental Health.

Simmons Cancer Center Joins Elite Group of Cancer Centers with NCI's Highest Level of Designation

In 2005, Dr. James K.V. Willson, Director of the Harold C. Simmons Comprehensive Cancer Center, announced UT Southwestern's intentions to become a National Cancer

Institute (NCI)-designated Comprehensive Cancer Center, the top tier for U.S. cancer centers. It was a lofty goal but one that Dr. Willson viewed as achievable, aided by the generosity of Harold C. and Annette Simmons and their family.

Through the combination of the extraordinary generosity of the Dallas/Fort Worth philanthropic community, commitments to new facilities and to cutting-edge technology, the recruitment of exceptional leadership, and the extraordinary work of dozens of investigators

in clinical and research fields, the Simmons Cancer Center achieved that ambition in July when the NCI announced UT Southwestern had earned comprehensive status.

Designation as a Comprehensive Cancer Center defines broad excellence in oncology, from patient care to research, and from prevention to outreach. The Simmons Cancer Center is one of just 45 in the nation to meet the high standards for comprehensive status, one of only three in Texas, and the

In 1988, Harold C. Simmons and Annette Simmons, already generous supporters of UT Southwestern biomedical research, committed \$41 million, in part to endow the Harold C. Simmons Comprehensive Cancer Center. Further support for the Center was supplemented by them and the Harold Simmons Foundation.



Dr. James K.V. Willson, Associate Dean of Oncology Programs and Professor and Director of the Harold C. Simmons Comprehensive Cancer Center at UT Southwestern, led successful efforts to have the Simmons Cancer Center recognized with comprehensive status from the National Cancer Institute, its highest designation.

second in the UT System, joining MD Anderson Cancer Center in Houston.

“There is no better reinforcement of an investment in the cure for cancer than this very exclusive designation from the NCI,” noted Annette Simmons at the time of the announcement. “Our hope has always been that we could make a sustainable difference in the fight against this cruel disease, and the comprehensive designation paves the way for even greater advances in the treatment and cure of cancer. We are very proud of the dedicated members of the UT Southwestern team who have made this honor possible.”

In 1988, a \$41 million gift from the late Mr. Simmons and Annette Simmons provided seminal funds to transform cancer research and care at UT Southwestern. In 1991, the Simmons Cancer Center was established. Altogether, the Simmons family has given and pledged more than \$100 million to enhance UT Southwestern's cancer programs.

“The continuing generosity of the Simmons family has been transformative in ensuring that cancer patients in North Texas and surrounding regions have access to the highest quality of care available anywhere in the country,” said Dr. Daniel K. Podolsky, President of UT Southwestern. “We also are extremely grateful to those in our community who have supported the research, technology, and infrastructure that serve as the foundation for this achievement.”

The Simmons Cancer Center reached its first milestone in 2010 when it was designated an NCI cancer center, meaning it met rigorous criteria for state-of-the-art programs in research. Five years later, the highest designation possible, with even more stringent criteria, had been achieved – comprehensive.

NCI-designated comprehensive cancer centers are a major source of discovery of the nature of cancer and of the development of more effective approaches to cancer prevention, diagnosis, and therapy. They also deliver medical advances to patients, educate health care professionals and the public, and reach out to underserved populations. Partnerships with Parkland Health & Hospital System, Children's Medical Center Dallas, the UT School of Public Health Dallas Regional Campus, and UT Southwestern's Moncrief Cancer Institute in Fort Worth played an important role in attaining the comprehensive designation.

“Underlying this designation is extraordinary dedication by the Dallas/Fort Worth community, the leadership of the Medical Center and our affiliated institutions, and faculty and staff across the University to ensure patients have access to innovative treatments, and to foster groundbreaking research that has the potential to improve patient care and prevention of cancer worldwide,” said Dr. Willson, also Associate Dean of Oncology Programs at



UT Southwestern. “The NCI designation underscores our dedication to not only improving results in how we manage disease, but also to making an impact on the community in terms of early detection and management of cancer at its most curable stages.”

Patient visits, clinical trials, and square footage have all doubled or more since the Simmons Cancer Center earned its initial NCI designation in 2010. And physical expansion is again underway, with renovations and new lab and clinical space expected this year. The Simmons Cancer Center also has broadened its presence across the Metroplex through the Moncrief Cancer Institute in Fort Worth and UT Southwestern’s Harold C. Simmons Comprehensive Cancer Center Fort Worth in the Moncrief Cancer Institute, as well as through clinical care space in the UT Southwestern Clinical Center-Richardson/Plano. The Simmons Cancer Center also will benefit from a new building project on campus for the Department of Radiation Oncology.

The strength of the Simmons Cancer Center is embedded in the work of multidisciplinary teams for each major type of cancer – breast, head and neck, lung, gastrointestinal, genitourinary, blood, brain, and gynecologic. Teams include surgeons, medical oncologists, radiation oncologists, pathologists, and basic and translational research scientists who offer patients the cumulative expertise of highly trained specialists and state-of-the-art technologies, all delivered in a seamless, integrated environment.



Access to clinical trials is an important part of that effort. The Simmons Cancer Center is the only cancer center in North Texas and among only 30 nationwide to be named a National Clinical Trials Network Lead Academic Participating Site, a prestigious designation by the NCI. The designation and associated fund-



UT Southwestern's Harold C. Simmons Comprehensive Cancer Center attained the top tier designation for U.S. cancer centers this past year, the National Cancer Institute's comprehensive designation.

technology, and facilities. It is the depth of expertise that is available to tap into for each patient who comes to us for help, and the synergy we create among those experts once assembled.”

The Simmons Cancer Center has assembled nearly 250 faculty members from more than 30 different departments organized under more than a dozen major cancer care programs. They use the full range of current cancer-fighting strategies – genetic testing, surgery, radiation, chemotherapy, immunotherapy, and bone marrow transplants – to advance cancer treatment and prevention. These clinical efforts go hand-in-hand with cancer research, assisted by world-renowned scientists at UT Southwestern who are the vanguard of future cancer treatments. Among them are a Nobel Laureate, 10 members of the National Academy of Sciences, four members of the National Academy of Medicine, six members of the American Academy of Arts and Sciences, eight Howard Hughes Medical Institute Investigators, eight department chairs, and 10 directors of endowed centers.

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. Willson holds The Lisa K. Simmons Distinguished Chair in Comprehensive Oncology.

ing is designed to bolster the Cancer Center's clinical cancer research for adults and to provide patients access to cancer research trials sponsored by the NCI, where promising new drugs are often tested.

“Since our founding, we have tripled the number of patients on clinical trials, and cancer drugs developed at UTSW are being tested in patients. We have created educational and research programs that foster interactions across departments and build bridges between scientific discovery and patient care,” Dr. Willson said. “What distinguishes top cancer centers, however, goes beyond the resources,



The Dallas Heart Study at 15 Years

Six thousand participants, 200 published papers, two genes associated with fatty liver disease discovered, one breakthrough drug class – those impressive numbers add up to the Dallas Heart Study, a landmark investigation begun at UT Southwestern Medical Center 15 years ago.

Dr. James de Lemos, Professor of Internal Medicine at UT Southwestern, called the Dallas Heart Study “one of the most significant medical events of this century in North Texas and perhaps the most far-reaching. The results of this study are transforming cardiovascular risk factor identification and management and leading to better prevention of heart disease across the nation.”

It all began in 1999 when Dr. Helen Hobbs, now Director of the Eugene McDermott Cen-

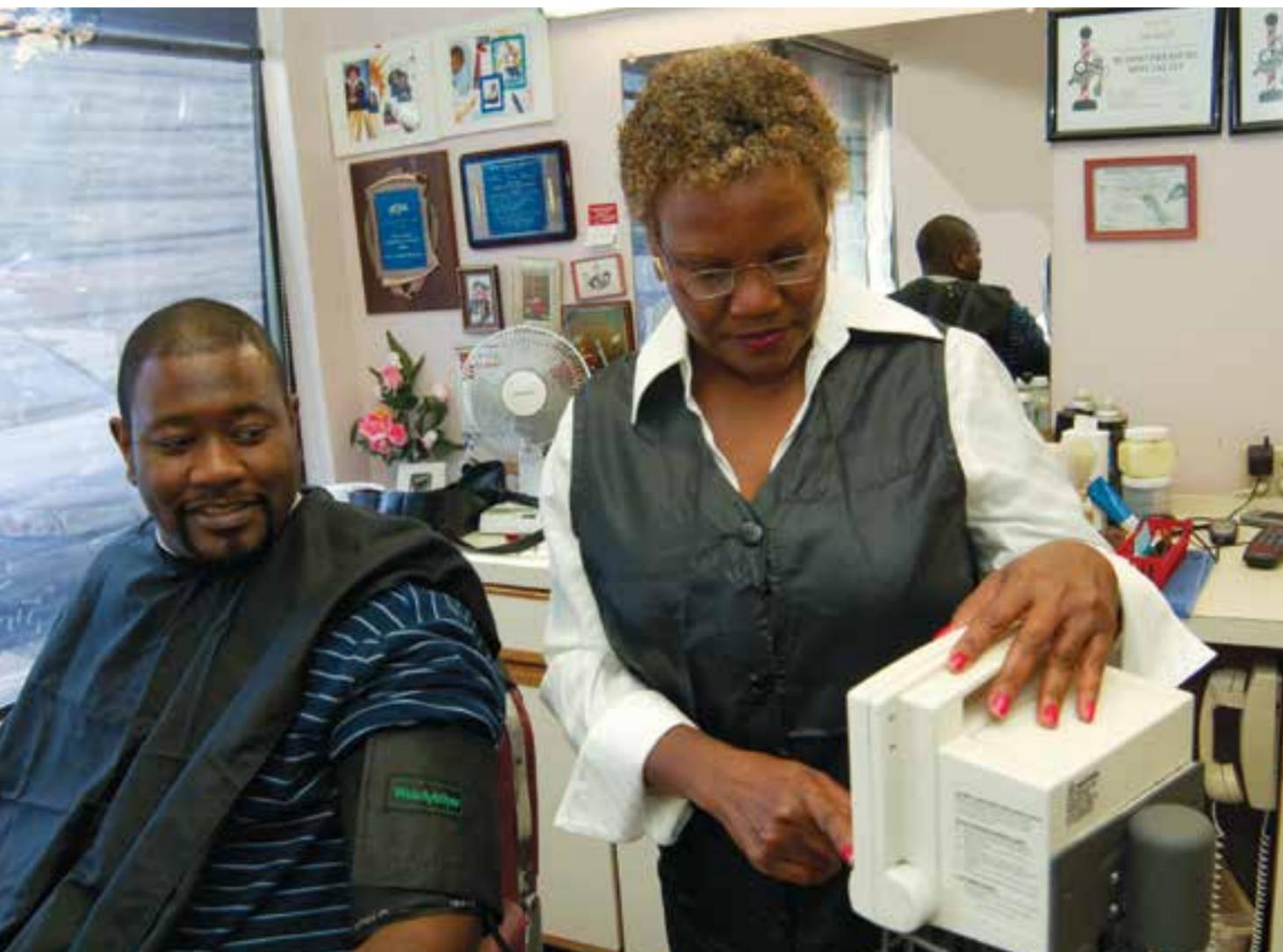
ter for Human Growth and Development and Professor of Internal Medicine and Molecular Genetics, sat down with two colleagues, Dr. Ronald Victor and Dr. Jonathan Cohen, to design a population-based study that would launch the next year and provide new insights into heart disease.

The scientific world was about to encounter an explosion of information about the human genome, but that genetic information would not be useful in a vacuum. “We knew that we were going to be able to sequence everybody's genome, but what was going to limit the speed of our work was developing a well-characterized population to be able to test our hypotheses,” Dr. Hobbs said.

With funding from the Donald W. Reynolds Foundation, the three colleagues designed a high-yield epidemiology study for the 21st century.



Members of the Dallas Heart Study team who collaborated on the launch in 2007 of the Study's second phase included (top row, left to right) Don Hammons, Teresa Eversole, Dr. Amit Khera, Dr. Ronald Victor, Dr. Darren McGuire, (bottom row, left to right) Dr. Helen Hobbs, Dr. James de Lemos, and Dr. Mark Drazner (not pictured).



In a study called Barber-Assisted Reduction in Blood Pressure in Ethnic Residents (BARBER-1), UT Southwestern investigators found that patrons of black-owned barbershops who had their blood pressure regularly measured there and who were encouraged to follow up with their physicians were nearly nine times more likely to see a physician than patrons who were simply given hypertension literature.

The study would collect extensive health information on 6,000 participants, 3,500 of whom had multiple imaging studies and blood samples taken to determine levels of circulating lipids and proteins. Data would include participant and family medical histories, socioeconomic data such as access to health care, and psychosocial information such as beliefs about diabetes. The study Drs. Hobbs, Victor, and Cohen designed deliberately oversampled African-Americans, a demographic group for

which heart disease is a particular problem.

Several hundred laboratory tests would be performed on blood and urine samples, and sophisticated imaging would include dual-energy X-ray absorptiometry (DXA) scans to determine bone mineral density and cardiac electron beam computerized tomography (EBCT) to measure calcium deposits in coronary arteries. The bar was set extremely high.

“Dr. Hobbs insisted from the beginning that we use the very best technology available,”

said Dr. Cohen, Professor of Internal Medicine and with the Eugene McDermott Center for Human Growth and Development.

And, crucially, genomic DNA would be isolated from the blood, and extensive genetic profiling would take place. The Dallas Heart Study thus would provide a large database of individuals for whom researchers would have both elaborate “genotype” (genetic sequence) and “phenotype” (actual physical traits) information.

The payoff for all this intensive data collection was almost immediate, as an assortment of researchers began using the data to investigate various hypotheses.

“The Dallas Heart Study has proved to be a powerful resource for defining the genetic basis of human biology and disease, including mechanisms controlling cholesterol metabolism, and will undoubtedly continue to be an engine for discovery for decades to come,” said Dr. Daniel K. Podolsky, President of UT Southwestern.

Arguably, the most notable findings from the early years was the work by Dr. Hobbs and Dr. Cohen on a gene that factors into cholesterol control. High LDL cholesterol is associated with heart disease, and the two used the Dallas Heart Study to test a hypothesis that certain mutations to the *PCSK9* gene would lead to low levels of circulating LDL cholesterol. They systematically sequenced DNA from study participants with the lowest LDL cholesterol levels and found three mutations in the *PCSK9* gene that caused low levels of LDL cholesterol.

Subsequently, they found a woman who had inherited two *PCSK9* gene mutations – one from each parent. This woman had startlingly low levels of LDL cholesterol. Importantly, she suffered no ill effects from her extremely low LDL cholesterol, suggesting

that therapies aimed at blocking or reducing the *PCSK9* protein would be both effective and safe.

This work led to the development by drug companies of a stunningly effective class of drugs for lowering LDL cholesterol. These drugs simulate the genetic mutations by inhibiting the function of *PCSK9*. Headlines nationwide last summer heralded the FDA approval of the first two medicines in this new class of cholesterol-lowering drugs.

Other published work based on the Dallas Heart Study includes findings that:

- Body fat distribution contributes to risk of developing both diabetes and heart disease.
- C-reactive protein levels, which are used to predict disease, vary between men and women, and between different races.



Dr. James de Lemos, Professor of Internal Medicine, serves as Medical Director for the Dallas Heart Study, a one-of-a-kind population-based study aiming, among other goals, to identify new genetic, protein, and imaging biomarkers that can detect cardiovascular disease at its earliest stages, when prevention is most effective.

- Computed tomography (CT) scanning to look for calcium deposits in arteries in the heart can aid in identifying individuals at high risk of heart disease.

The Dallas Heart Study combines the best features of laboratory and population-based research, and aims to:

- Identify new genetic, protein, and imaging biomarkers that can detect cardiovascular disease at its earliest stages.
- Identify social, behavioral, and environmental factors contributing to cardiovascular risk in our community, leading to improved community-based interventions.
- Enhance our understanding of the biological basis of cardiovascular disease.

■ A new blood test can detect damage to heart muscle cells, which may help to predict who will develop heart disease in the future.

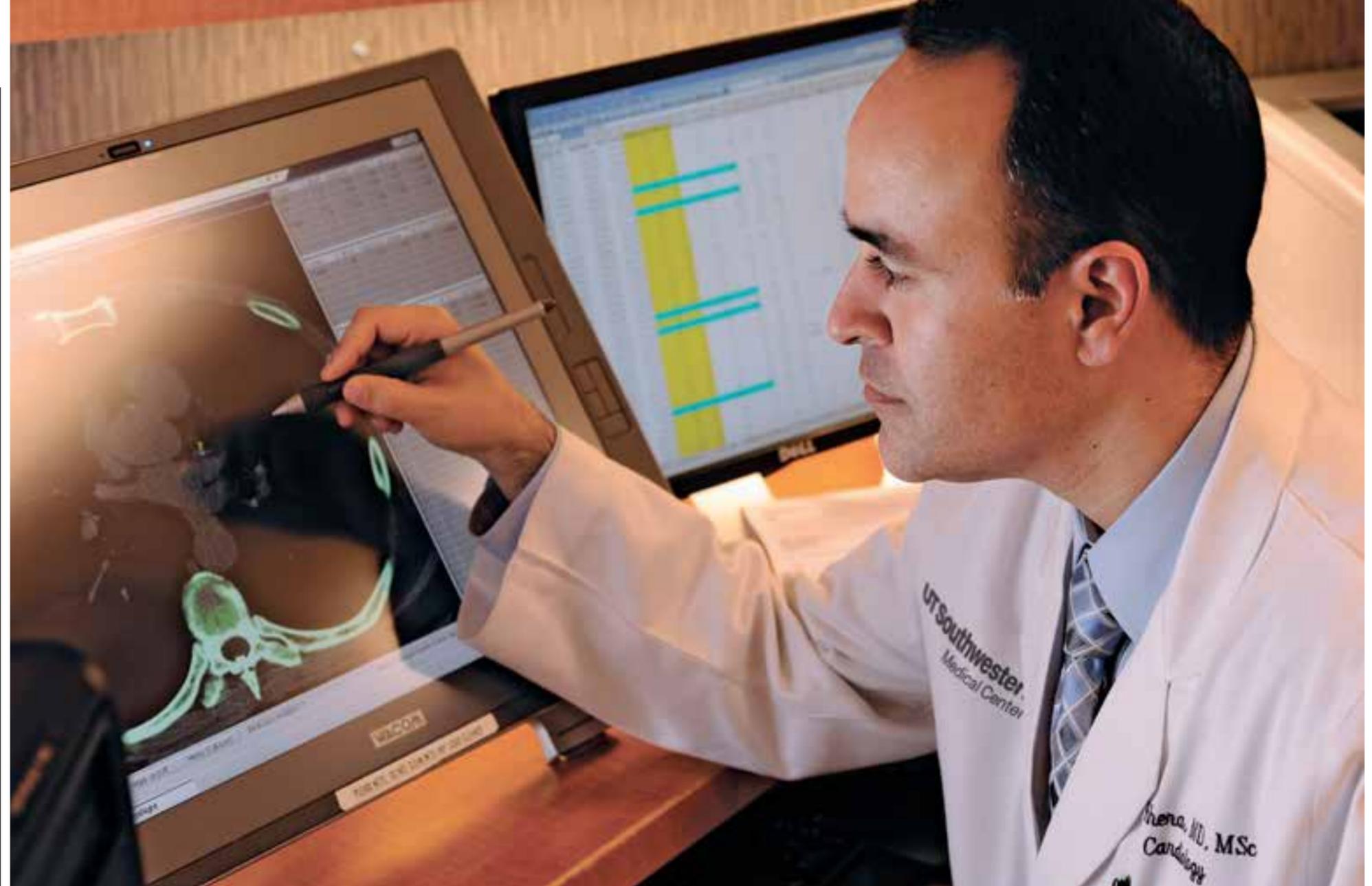
■ Women with a family history of heart disease are less likely to change smoking, diet, and exercise habits to lower their heart disease risk than men with such family histories.

■ Hispanics have a higher risk and African-Americans a much lower risk of developing fatty liver disease; researchers also identified two new genetic variants that increase the risk of fatty liver disease.

In 2007, with the benefit of another grant from the Donald W. Reynolds Foundation, the Dallas Heart Study was transformed from a cross-sectional study, or one-time snapshot, to a longitudinal study observed across time, with the execution of Phase II of the Dallas Heart Study.

More than 3,000 of the original participants returned to the clinic. Tests in Phase II included an abbreviated stress test to assess fitness, a neck MRI measuring plaque in the carotid artery, a proton magnetic resonance spectroscopy (MRS) of the liver to measure liver triglycerides, a brain MRI and assessment of cognitive function, and much more.

To date, some 200 studies have been published based on data from the Dallas Heart Study, and the work continues. In 2015, for example, a study in the *New England Journal of Medicine* found that high-density lipoprotein (HDL) cholesterol function is a better predictor of cardiovascular risk than a simple measurement of quantity.



Dr. Amit Khera, who will lead Phase III of the Dallas Heart Study, will determine what questions researchers will explore and what data they will gather.

And Phase III of the Dallas Heart Study is in the works, under the direction of Dr. Amit Khera, Associate Professor of Internal Medicine. Dr. Khera is currently leading a series of meetings with key researchers on campus to determine the scientific questions that will be explored in the next phase and the approaches they will use.

“Our general scientific focus currently is on healthy aging, looking at ‘preclinical phenotypes,’ meaning we will use imaging and sophisticated testing to look at early markers of

age-related transitions, with the goal of determining how to best preserve health and modify decline with time,” Dr. Khera said.

The landmark Dallas Heart Study will continue to fuel insights into heart disease, liver disease, aging, and more for years to come.

Dr. Cohen holds the C. Vincent Prothro Distinguished Chair in Human Nutrition Research.

Dr. de Lemos holds the Sweetheart Ball-Kern Wildenthal, M.D., Ph.D. Distinguished Chair in Cardiology.

Dr. Hobbs holds the Eugene McDermott Distinguished Chair for the Study of Human Growth and Development, the Philip O'Bryan Montgomery, Jr., M.D. Distinguished Chair in Developmental Biology, and the 1995 Dallas Heart Ball Chair in Cardiology Research.

Dr. Khera holds the Dallas Heart Ball Chair in Hypertension and Heart Disease.

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.

PCSK9

Early work by UTSW researchers on how the protein PCSK9 affects cholesterol led to development of cholesterol-fighting drugs known as PCSK9 inhibitors.

Technological Innovation Drives Breakthroughs in Medicine, Science

Breakthroughs in medicine and science depend on the latest technology, used by the brightest minds. At UT Southwestern, staying at the forefront of medicine is of utmost importance and is interconnected with a commitment to expanding use of technology to improve patient care and further research.

The Medical Center's recent establishment of the Lyda Hill Department of Bioinformatics is a perfect example of how technology is being used to advance medicine. The new



An exceptional \$25 million gift from Lyda Hill has funded establishment of the Lyda Hill Department of Bioinformatics to bridge research and clinical care.

Department, established in summer 2015 with an extraordinary \$25 million gift from Dallas entrepreneur and philanthropist Lyda Hill, will use technology to bridge UT Southwestern's internationally renowned medical research and clinical care expertise.

Bioinformatics

The emerging field of bioinformatics provides tools for managing and analyzing the extremely large sets of research data that are key to addressing the most pressing scientific and clinical challenges at an institution like UT Southwestern. Finding the patterns in these data sets has become an essential component of biomedical discovery and is crucial to developing new therapeutic strategies, understanding the basic foundations of life, and determining the genetic and molecular defects that cause disease.

"Over the long term, I believe bioinformatics will prove indispensable in bridging the outstanding research activity at UT Southwestern with the most promising clinical applications," Miss Hill said. "My hope is that our investment will help overcome the technological barriers in managing and analyzing data, enabling patients to benefit from research breakthroughs."

The gift and establishment of the new Department will allow UT Southwestern to further enhance its excellence in education and research. Specifically, current efforts of the Department include the recruitment of new faculty to establish research programs in neuroinformatics, genomics, medical informatics, and complementary areas of computer science; the launch of a Bioinformatics Core



Dr. Gaudenz Danuser, Chair of the Lyda Hill Department of Bioinformatics and a Cancer Prevention and Research Institute of Texas (CPRIT) Scholar, was selected after a national search to chair the new Department.

Facility that supports researchers across campus in data management and analysis; investment in modern computing infrastructure that is so vital to this work; and initiation of training programs.

The Lyda Hill Department of Bioinformatics is led by Dr. Gaudenz Danuser, Chairman, an internationally recognized leader in engineering and computational biology. Before joining UT Southwestern, Dr. Danuser directed research laboratories at ETH Zurich, The Scripps Research Institute in La Jolla, California, and Harvard Medical School. Chosen from among the top candidates in the country, Dr. Danuser is a Cancer Prevention and Research Institute of Texas (CPRIT) Scholar.

"We look forward to bringing bioinformatics to an unprecedented level of excellence at UT Southwestern," Dr. Danuser said. "One of our goals is to use bioinformatics technology to establish biomedical data models that integrate information from a wide range of sources and a complexity that escapes intuition. Being able to process such data with modern computational approaches will allow us to address important questions in basic research, population studies, and clinical care and will help us advance our ability to prevent, detect, and treat disease."

Technology and Patient Care

UT Southwestern's commitment to technology integration is already impacting patient care. As a testament to this, UT Southwestern's

"Our technology seamlessly integrates into every mission at UT Southwestern," said Dr. Bruce Meyer, Executive Vice President for Health System Affairs. "It is fundamental to continually improve patient care, to remain



All 460 single-patient rooms at William P. Clements Jr. University Hospital make it possible for patients to control the lighting, temperature, and window shades in their room with a remote control at their bedside. Wi-Fi in each room allows patients to connect with the world using their laptops and portable electronic devices.

hospitals have been recognized by *Hospital & Health Networks* magazine for being one of the "Most Wired" campuses in the country for five consecutive years. Also, last year UT Southwestern was ranked as one of the "Most Connected Hospitals" for 2015-2016 by *U.S. News & World Report* based on its commitment to use of digital technology in health care.

at the forefront of innovative research, and to ensure the next generation of physicians is well-prepared for the challenges awaiting them."

The inclusion of state-of-the-art videoconferencing technology inside William P. Clements Jr. University Hospital and Zale Lipshy University Hospital allows physicians on campus to connect with UT Southwestern doctors at other locations, with pathologists to discuss lab results, and with colleagues around the world. For instance, surgeons now have videoconferencing capabilities inside the operating rooms, allowing real-time discussions with colleagues during surgery.

This technology also is a fundamental aspect of the patient experience at Clements and Zale Lipshy. Interactive flat-screen monitors equipped with high-definition cameras are in every patient room, allowing patients to connect with family and friends as well as physicians during their stay. In many cases, physicians provide one-on-one consultations with the patient, or with other members of the patient's care team, to discuss test results such as X-rays, CT scans, and MRIs.

Dr. John Warner, Vice President and Chief Executive Officer of UT Southwestern University Hospitals, led the planning process for the new Clements University Hospital, placing emphasis on integration of the most advanced technology with a patient-centered focus.

Medical Education Enriched

On campus, UT Southwestern faculty use interactive whiteboards to improve learning opportunities for medical students. These SMART Boards are integrated throughout hospital teaching areas, allowing X-rays and other images to be accessed for medical conferences and case discussions by multidisciplinary teams. At the same time, students have instant access to notations being made.

These advances help ensure that UT Southwestern remains at the forefront of medical education and that graduates are nationally competitive, ready to take on the world's newest medical opportunities and challenges.

Mobile Technology Enhancements

UT Southwestern's commitment to technology integration goes well beyond the borders of the campus, however. The expanded use of MyChart – a digital health record and communications tool – allows patients to make and track appointments, see test results, com-

municate with physicians and nurses, and securely access medical records from their smartphones or computers. While MyChart has been available to UT Southwestern patients since 2005 on computers, enhanced mobile capabilities have made it even more engaging and convenient. Now, more than 50,000 UTSW patients use MyChart to pose questions to physicians, schedule appointments, and refill prescriptions over encrypted, secure connections.

"People really feel like they have their medical records in their pockets now, even when they travel. This is much more convenient and powerful than the traditional method of always having to get to a computer," said Suresh Gunasekaran, Associate Vice President and Chief of Operations for Health System Affairs. "Patients are not just using it for themselves, but also for their parents or for their children – that's one of the really compelling aspects of MyChart."

Other mobile advances have boosted the access, appearance, and search capabilities of the UTSW patient care website, utswmedicine.org. This makes it easier than ever for people to use their smartphones to learn about UT Southwestern's clinical specialties and details about physicians' interests, backgrounds, and expertise. Together, these features make the overall patient experience easy and manageable.

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

Dr. Meyer holds the T.C. Lupton Family Professorship in Patient Care, in Honor of Dr. John Dowling McConnell and Dr. David Andrew Pistenmaa.

Dr. Warner holds the Jim and Norma Smith Distinguished Chair for Interventional Cardiology, and the Audre and Bernard Rapoport Chair in Cardiovascular Research.



Achieving

Breakthroughs in Research

Their work may have begun with a tiny idea, such as how a bacterium manipulates its environment to survive and then attack the human body. But results can be game-changing, leading to new strategies to fight off disease, or perhaps premier scientific minds continued to make them well-deserved recognition in their fields. UT Southwestern's significant discoveries in 2015, earning

drugs to combat cancer. UT Southwestern's significant discoveries in 2015, earning

Exceptional Scientific Work Leads to Prestigious Honors

Research advancements by UT Southwestern scientists continued to be recognized at the highest pinnacles, with recognition in 2014-2015 from the National Academy of Sciences (NAS), the American Academy of Arts and Sciences (AAAS), Howard Hughes Medical Institute (HHMI), the Breakthrough Prize, and, regionally, The Academy of Medicine, Engineering & Science of Texas.

“These outstanding scientists are illuminating fundamental processes related to some of the most serious illnesses of society in the 21st century,” said Dr. Daniel K. Podolsky, President of UT Southwestern, who 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. “Their exceptional work not only is inspiring but also showcases the critical value and importance of broadening our understanding of the molecular, cellular, and

biological processes that underlie disease states as a foundation for improvements in clinical care and disease prevention.”

UT Southwestern now has 22 NAS members on its faculty, 18 members of the National Academy of Medicine, 16 members of the AAAS, and 13 HHMI Investigators, placing the institution among the most elite group of academic medical centers in the country.

“These outstanding scientists are illuminating fundamental processes related to some of the most serious illnesses of society in the 21st century.”
— Dr. Daniel K. Podolsky



Dr. Lora Hooper

Dr. Lora Hooper, Professor of Immunology and Microbiology, was elected to the National Academy of Sciences for her research on understanding how resident intestinal bacteria influence the biology of humans and other mammalian hosts.



Discoveries by Dr. Hooper, a Howard Hughes Medical Institute Investigator, have helped explain how we peacefully coexist with the trillions of beneficial bacteria present in our intestinal tract and may ultimately reveal alterations in these populations that can make it possible for disease-causing bacteria to overtake them.

Dr. Hooper’s work has provided insights into the molecular mechanisms that mediate the interaction between the remarkably dense and complex community of intestinal microbes and the intestine to maintain health. These normal flora not only limit the ability of pathologic agents to cause infections but also influence susceptibility to many other disorders, such as diabetes, heart disease, and obesity.

“We live in harmony with a huge community of microbes within our own bodies, neither allowing them to invade vital tissues nor trying to eradicate them. This balancing act has puzzled immunologists for decades. Lora has made some of the most spectacular discoveries in the field,” said Dr. Bruce Beutler, Regental Professor, Director of the Center for the Genetics of Host Defense, recipient of the 2011 Nobel Prize in Physiology or Medicine, and holder of the Raymond and Ellen Willie Distinguished Chair in Cancer Research, in Honor of Laverne and Raymond Willie, Sr.

Dr. Hooper, also a member of the Center for the Genetics of Host Defense, holds the Jonathan W. Uhr, M.D. Distinguished Chair in Immunology and is a Nancy Cain and Jeffrey A. Marcus Scholar in Medical Research, in Honor of Dr. Bill S. Vowell.

Dr. Steven Kliewer

Dr. Steven Kliewer, Professor of Molecular Biology and Pharmacology, was elected to the National Academy of Sciences for his research in the field of orphan nuclear receptors.

Dr. Kliewer, holder of the Nancy B. and Jake L. Hamon Distinguished Chair in Basic



The UT Southwestern faculty currently includes:

- 5 Nobel Laureates
- 22 members of the National Academy of Sciences
- 18 members of the National Academy of Medicine
- 16 members of the American Academy of Arts and Sciences
- 13 Investigators of the Howard Hughes Medical Institute

Cancer Research, identified the therapeutic target for a class of drugs used to fight Type 2 diabetes. Since his recruitment, he has shown that a hormone secreted by the gut – FGF19 – regulates bile acid metabolism in the liver.

Dr. Kliewer runs a joint laboratory with Dr. David Mangelsdorf, Chairman of Pharmacology and a Howard Hughes Medical Institute Investigator, who earlier had identified the bile acid receptor and its downstream targets in the liver. Their work has identified two novel targets (the bile acid receptor and FGF19) that are now clinical candidates for new therapeutic interventions for gastrointestinal disorders, including non-alcoholic fatty liver disease.

“Dr. Kliewer’s FGF19 finding was the missing link in the feedback loop by which bile acids regulate their own synthesis, and he is considered one of the founding members of the field of orphan nuclear receptors. He has made seminal contributions with clear importance to medicine and biology,” said Dr. Mangelsdorf, who holds the Alfred G. Gilman Distinguished Chair in Pharmacology and the Raymond and Ellen Willie Distinguished Chair in Molecular Neuropharmacology in Honor of Harold B. Crasilneck, Ph.D.

Dr. Helen Hobbs

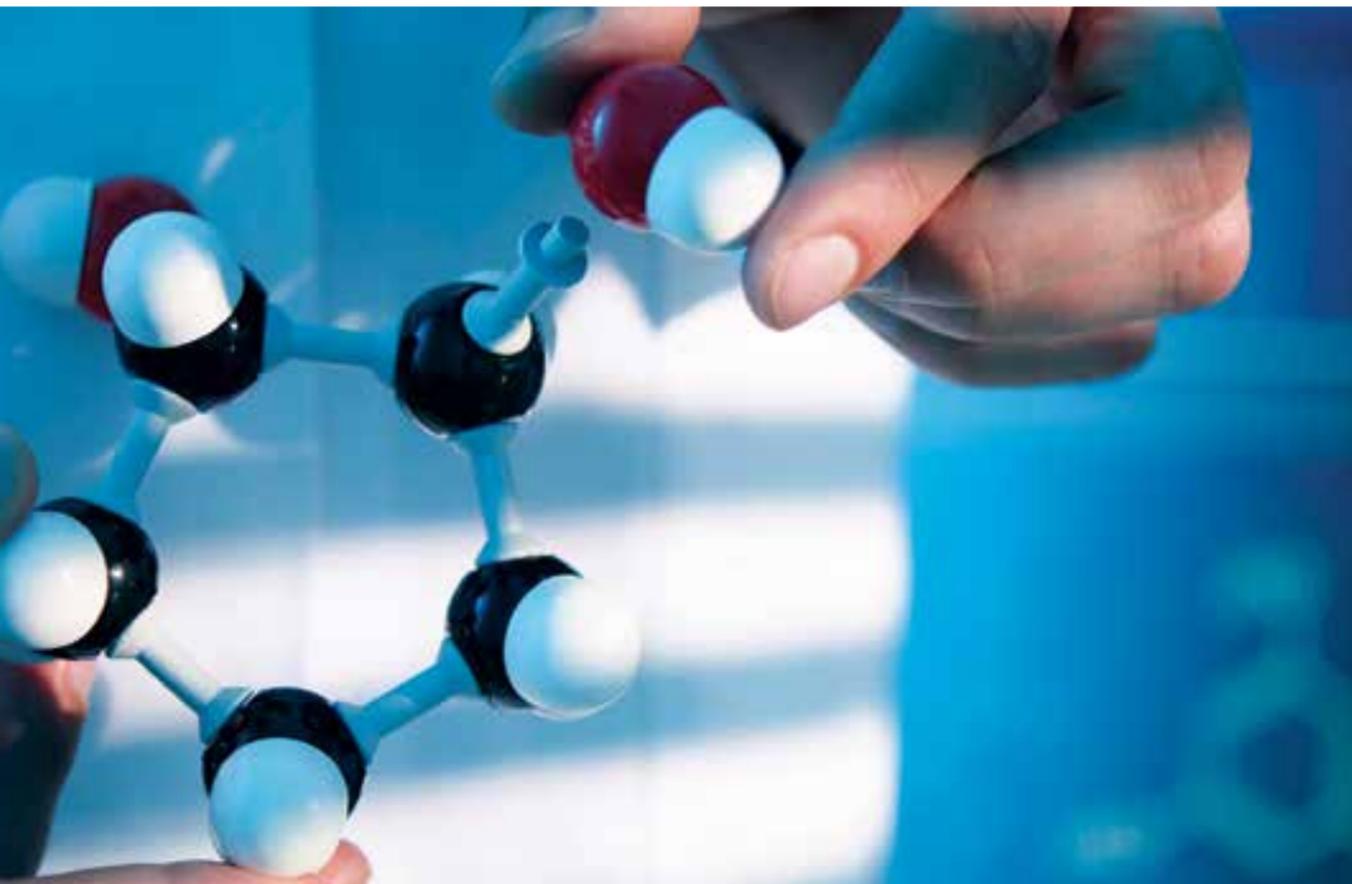
Dr. Helen Hobbs, Director of the Eugene McDermott Center for Human Growth and Development, received two prestigious awards in 2015 related to her research on heart disease and other disorders as a geneticist.

In November, Dr. Hobbs received the Breakthrough Prize in Life Sciences, an international award begun in 2012 by Russian entrepreneur Yuri Milner, Google co-founder Sergey Brin, Facebook founder Mark Zuckerberg, and Alibaba founder Jack Ma. Prizes of \$3 million are awarded annually for groundbreaking discoveries in the fields of Mathematics, Physics, and Life Sciences. The prize honored Dr. Hobbs for the transformative genetics research techniques she developed and used to identify key genes involved in lipid metabolism and fatty liver disease.

The honor followed her receipt of the Pearl Meister Greengard Prize, also in November. That international award from The Rockefeller University recognized Dr. Hobbs’ research to advance the understanding of heart disease and other complex disorders. The work of Dr. Hobbs, also a Howard Hughes Medical Institute Investigator, is credited with leading to new therapeutics to lower LDL cholesterol.

Since 1999, Dr. Hobbs has led the Dallas Heart Study, a longitudinal, multiethnic, population-based investigation of risk factors underlying cardiovascular disease, the nation’s leading cause of death for both men and women. The study, originally funded by the Donald W. Reynolds Foundation, involves thousands of participants and the meticulous collection of data on traits that could be linked to genes involved in heart disease. (See related story on page 39.)





Dr. Hobbs holds the Eugene McDermott Distinguished Chair for the Study of Human Growth and Development, the Philip O'Bryan Montgomery, Jr., M.D. Distinguished Chair in Developmental Biology, and the 1995 Dallas Heart Ball Chair in Cardiology Research.

Dr. Kim Orth

Dr. Kim Orth, Professor of Molecular Biology and Biochemistry, was named a Howard Hughes Medical Institute Investigator last year for research related to how pathogens manipulate host cells for their own benefit and survival.

Dr. Orth, who holds the Earl A. Forsythe Chair in Biomedical Science and is a W.W. Caruth, Jr. Scholar in Biomedical Research, has made pioneering discoveries regarding the basic biochemical mechanisms underlying many

bacterial infections. In particular, her work has identified new ways that invading bacteria hijack and deregulate a cell's signaling systems.

Her research group found that *Yersinia*, the bacteria that causes plague, silences an infected cell's attempts to summon immune cells by chemically modifying a key signaling protein so that it can no longer be switched on. The



group's studies of *Vibrio parahaemolyticus*, a bacterium that causes food-borne illness, showed that the microbe injects a toxin into host cells that remodels the cell's membrane structure, causing it to engulf the bacteria. Once inside, bacteria grow and divide until the host cell ruptures.

Studies of another *Vibrio* toxin by Dr. Orth and her colleagues revealed a previously unrecognized way in which cells chemically modify their proteins to alter their function. The bacteria use the modification, which Dr. Orth named AMPylation, to cause host cells to collapse and die. Her team also discovered a protein that many bacteria use to adhere to cells during the early stages of infection. Researchers are now testing whether they can interfere with that attachment to prevent or weaken infections in patients.

Dr. Joshua Mendell

Dr. Joshua Mendell, Professor of Molecular Biology, received the 2016 Edith and Peter O'Donnell Award in Medicine from The Academy of Medicine, Engineering & Science of Texas for research related to the regulation and function of microRNAs in normal physiology and disease. This work, for which he also was named a Howard Hughes Medical Institute Investigator last year, advances scientific understanding of wound healing, tissue regeneration, and diseases such as cancer.

Dr. Mendell, previously named an HHMI Early Career Scientist and a Cancer Prevention and Research Institute of Texas Scholar in Cancer Research, has been a leader in the study of microRNAs, which regulate gene activity, and

the mechanisms through which they influence development and disease. For example, his laboratory showed that a well-known, cancer-promoting protein, MYC, directly stimulates production of a specific cluster of six microRNAs that contribute to MYC's ability to drive tumor formation.



Work from the Mendell lab has revealed involvement of microRNAs in several other critical cancer pathways as well, and the lab recently demonstrated that certain microRNAs are important for wound healing. Dr. Mendell's team also has uncovered new mechanisms through which the abundance of microRNAs is controlled in normal tissues and in tumors.

The work of Dr. Joshua Mendell investigating the regulation and function of microRNAs has the potential to aid in development of new therapies for cancer and wound healing.

Ultimately, Dr. Mendell is interested in developing new therapies for human disease, and his work in animal models has provided persuasive evidence of the therapeutic potential of microRNAs. His team slowed the growth of liver tumors in mice by giving the animals a specific microRNA that was present at lower levels in cancer cells, compared to healthy liver cells. The treatment killed tumor cells but preserved healthy cells, suggesting that such therapies might be tolerated and effective.

Dr. Sandra Schmid

Dr. Sandra Schmid, Chair of Cell Biology, was elected to the American Academy of Arts and Sciences for her research on endocytosis – the fundamental process by which cells internalize nutrients and hormones.



Dr. Schmid's research has advanced the understanding of clathrin-mediated endocytosis (CME), a complex process that is critical for regulating signaling, adhesion, nutrient uptake, immune responses, and synaptic trans-

mission. In this process, clathrin coat proteins assemble and form invaginated clathrin-coated pits (CCPs) on the plasma membrane into which receptors are concentrated. CCPs pinch off to form clathrin-coated vesicles that carry cargo into the cell.

Dr. Schmid's lab combines sophisticated molecular cell biology, biochemistry, biophysics, and quantitative live-cell total internal reflection fluorescence microscopy to identify and study factors that regulate CME. She has identified the protein dynamin as the "master regulator." Dynamin functions to regulate early stages of CME and ensure the fidelity of CCP maturation. At late stages, dynamin assembles into collar-like structures that squeeze the necks of deeply invaginated CCPs. Dr. Schmid discovered the mechanics of how these dynamin collars then drive membrane fission and vesicle release.

Mutations in dynamin are linked to human neuromyopathies. More recently, she discovered that changes in dynamin-regulated CME can alter signaling, proliferation, and survival of cancer cells.

Dr. Schmid, past President of the American Society for Cell Biology, holds the Cecil H. Green Distinguished Chair in Cellular and Molecular Biology. Last year, she received an honorary Ph.D. from Stockholm University, and in March 2016 she received the Sir Bernard Katz Award for Excellence in Research on Exocytosis and Endocytosis from the Biophysical Society.



Dr. Yuh Min Chook

Dr. Yuh Min Chook, Professor of Pharmacology and Biophysics, received the 2015 Edith and Peter O'Donnell Award in Science from The Academy of Medicine, Engineering & Science of Texas for her landmark studies into the fundamental process of protein transport into and out of the cell's nucleus.

Her studies combine structural biology, biochemistry, biophysics, and bioinformatics to investigate a class of molecules called nuclear transport receptors that carry protein cargo into (importins) and out of (exportins) the nucleus, the cell's command center.

For proper cell function, each of the importer and exporter molecules must carry hundreds of different proteins in and out of the nucleus each day, Dr. Chook explained.

Different sets of proteins are carried by specific nuclear transport receptors that recognize specific signals on the proteins. Dr. Chook compared the situation to buses carrying passengers through a tunnel (the nuclear pore complex through which protein cargoes enter and exit the nucleus) but only if the passengers (the proteins) have the proper tickets (signals) for travel.

Advances from Dr. Chook's laboratory have been instrumental to the development of potential therapeutics that are now the subject of more than 40 clinical trials for a variety of cancers, including those of the blood (leukemia), the brain (neuroblastoma), and the skin (melanoma).

Dr. Chook is a Eugene McDermott Scholar in Biomedical Research.



The Edith and Peter O'Donnell Awards, issued annually by The Academy of Medicine, Engineering & Science of Texas, have honored 12 UT Southwestern faculty members as rising stars in Texas research since the program began in 2006.



Accomplishing Excellence

Pushing the limits to achieve scientific reputation as a pre-eminent led to new initiatives, often built upon the work and Dr. Donald W. Seldin. A key generous funding from groups

breakthroughs has grown UT Southwestern's academic medical center. Those efforts have of esteemed scientists such as Dr. Eric Olson component to building excellence is having such as Southwestern Medical Foundation.

Hamon Center Makes Advances in Stem Cell and Heart Muscle Regeneration

Some organs and tissues, such as skin, bone, and even the liver, can repair themselves after an injury. But following a heart attack, damaged heart muscle is irreparably scarred. Research conducted at UT Southwestern's Hamon Center for Regenerative Science and Medicine could change that someday, dramatically improving the possibilities for recovery from a heart attack.

In its first full year of operation, scientists affiliated with the Center published research that not only pointed toward a potential path for regenerating heart muscle but also advanced our understanding of stem cell division.

"The goal of this Center is to understand the basic mechanisms for tissue and organ formation, and then to use that knowledge to regenerate, repair, and replace tissues damaged by

aging and injury," said Dr. Eric Olson, Chair of the Department of Molecular Biology, who leads the Center.

The Center, established in 2014, was made possible by a \$10 million endowment gift from the Hamon Charitable Foundation.

Dr. Eric Olson and Dr. Rhonda Bassel-Duby, Professor of Molecular Biology, shown together in the Hamon Center for Regenerative Science and Medicine, investigate the basic mechanisms for tissue and organ formation, then aim to use that knowledge to regenerate, repair, and replace tissues damaged by aging and injury.



"We expect the Hamon Center to be a source of transformative advances in regenerative science and medicine," said Dr. Daniel K. Podolsky, President of UT Southwestern, who 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. "Already, Dr. Olson's discoveries have provided profound insights into basic mechanisms underlying altered cardiovascular function in disease."

This past year, Dr. Hesham Sadek, Associate Professor of Internal Medicine, made important advances toward the goal of heart muscle regeneration. Heart muscle is not regenerated following a heart attack or other significant damage, but a low level of heart muscle cell proliferation occurs regularly to replace the effects of normal wear and tear. Dr. Sadek and colleagues identified a cell type that replenishes adult heart muscle.

"Now we have a target to study. If we can expand this cell population, or enhance its ability to divide, then we can make new muscle cells," said Dr. Sadek, who holds the J. Fred Schoellkopf, Jr. Chair in Cardiology.

In other words, it might be possible one day to coax these special cells into dividing enough to repair the heart following a heart attack.

In a related finding, Dr. Pradeep Mammen, Associate Professor of Internal Medicine, Dr. Sadek, and others also found evidence that left ventricular assist device (LVAD) machines may create an environment that promotes regeneration of heart muscle. LVADs are implanted in patients awaiting heart transplants to assist with pumping blood.

"We expect the Hamon Center to be a source of transformative advances in regenerative science and medicine. Already, Dr. Olson's discoveries have provided profound insights into basic mechanisms underlying altered cardiovascular function in disease." – Dr. Daniel K. Podolsky

To further that research, Dr. Sadek is establishing an LVAD center to conduct clinical trials to show more definitively whether these devices promote heart muscle regrowth. Dr. Sadek hopes to follow 20 patients for the first study. This research effort is supported with funding from the Hamon Center and the collaboration of Dr. Mammen and Dr. Mark Drazner, Professor of Internal Medicine, Med-



Dr. Hesham Sadek, Dr. Pradeep Mammen, and Dr. Diana Canseco (l-r) examine two models of left ventricular assist devices. Researchers found that prolonged use of these devices by patients with heart failure may induce regeneration of heart muscle.

ical Director of the Heart Failure, LVAD, and Cardiac Transplantation Program, and holder of the James M. Wooten Chair in Cardiology.

In stem cell research, Dr. Michael Buszczak, Associate Professor of Molecular Biology, and colleagues identified a mechanism that helps explain why stem cells undergo self-renewing divisions but their offspring do not. Adult stem cell division provides a ready supply of new cells needed for homeostasis throughout the life of an organism, but it must be controlled. Too much stem cell reproduction can lead to cancerous growth and too little stem cell reproduction results in inadequate cell renewal and it underlies the aging process.

“We discovered that stem cells form microtubule-based nanotubes, which extend into specialized environments called niches. These threadlike nanotubes act like straws to tap into the niches and allow signaling to occur specifically in the stem cell,” said Dr. Buszczak, who is an E.E. and Greer Garson Fogelson Scholar in Medical Research.

“The Hamon Center for Regenerative Science and Medicine is making important advances in basic stem cell biology as well as in the development of new therapeutic strategies for heart, muscle, and neuronal diseases,” said Dr. Olson, who holds The Robert A. Welch Distinguished Chair in Science, the Pogue Distinguished Chair in Research on Cardiac Birth Defects, and the Annie and Willie Nelson Professorship in Stem Cell Research.

“Going forward,” he added, “we will continue to interlink basic scientists and clinicians across the campus to advance the latest discoveries in regenerative medicine and improve human health.”

A Celebration of Leadership – Dr. Donald W. Seldin Honored

UT Southwestern unveiled a bronze statue of Dr. Donald W. Seldin at a celebration dedicating the renovated plaza at the center of campus named in his honor.

As a lasting tribute, the Dr. Donald Seldin Plaza recognizes the legendary leadership and accomplishments of Dr. Seldin, UT Southwestern’s Chairman Emeritus of

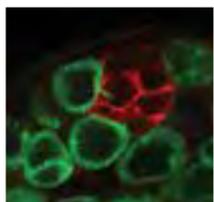
Internal Medicine and UT System Professor of Internal Medicine, who holds the William Buchanan Chair in Internal Medicine.

In April 2015, the American Society for Clinical Investigation (ASCI), one of the nation’s oldest medical honor societies, announced the creation of the Donald Seldin-Holly Smith Pioneering Research Award. The honor, established to support young physician-scientists at the early stages of their careers, was disclosed during the ASCI/Association of American Physicians joint annual meeting in Chicago.

In May, the Texas Medical Association bestowed its highest honor – the 2015 Texas

Medical Association Distinguished Service Award – on Dr. Seldin in recognition of his career, now in its seventh decade. A major figure in the emergence of nephrology as a discipline, Dr. Seldin is founder of the American Society of Nephrology, one of seven learned societies around the world to which his peers have elected him President. He also holds six honorary doctorates, including one from Yale University and another from the Université de Paris VI, Pierre et Marie Curie.

Dr. Donald W. Seldin stands beside a statue of himself unveiled in his honor at the dedication of the Dr. Donald Seldin Plaza, located on the South Campus, in March 2015.



Research from the Hamon Center includes the discovery that stem cells form microtubule-based nanotubes, which extend into specialized environments called niches.

Southwestern Medical Foundation's Generosity Through the Years Has Guided UT Southwestern's Growth and Impact

Nearly a century ago, Dallas physician Dr. Edward H. Cary brought to life the vision of making Dallas a front-runner in medicine and scientific research. In 1939, he led the formation of Southwestern Medical Foundation, the organization that birthed Southwestern Medical College in 1943, which eventually became UT Southwestern Medical Center.

In the decades that have followed, Southwestern Medical Foundation has played a key role in a series of successful campaigns that have advanced UT Southwestern's distinctive mission in academic medicine through needed facilities, innovative and groundbreaking research, exceptional medical education, and collaborative, high-quality clinical care.

"Seventy-five years ago, Southwestern Medical Foundation was formed by leaders who knew that a great city would require great philanthropy. Within UT Southwestern's clinics, hospitals, laboratories, and classrooms, we celebrate the impact made by our founders and the vast contributions made by our generous community," said Robert B. Rowling, Chairman of Southwestern Medical Foundation. "These have led to extraordinary progress in medicine and will ensure our bright future."

Last year, the Foundation, in collaboration with UT Southwestern, created The Cary Council, named in honor of

Southwestern Medical Foundation, in collaboration with UT Southwestern, created The Cary Council, named in honor of Dr. Edward H. Cary.



Southwestern Medical Foundation has played a key role in a series of successful campaigns to advance UT Southwestern. Celebrating more than 75 years of support are the Foundation's Chairman, Robert B. Rowling (left), and President and CEO, Kathleen Gibson.

Dr. Cary. The Cary Council is designed to engage a new generation of leaders who will continue his mission to "inspire a great citizenship to greater deeds."

"The Cary Council is made up of some of our region's smartest, most talented, and dedicated young civic leaders," Mr. Rowling said. "We are honored to have this new generation of leaders helping the Foundation expand its message about the importance of the education of our doctors and the promises of science-based medical research and its impact on the importance of clinical care. UT Southwestern does this as well as anyone and has a prominent and critical role to play in our state."

Celebration of its recent 75th anniversary gave Southwestern Medical Foundation an opportunity to reflect on historic accomplishments, as well as ways to continue helping advance science and medicine.

"It is a remarkable journey set against a wilderness in health care that began with a grand vision of bringing a great medical center to Dallas," explained Kathleen Gibson, President and CEO of Southwestern Medical Foundation. "Above all else, it is a story of our community realizing a vision. Despite the headwinds of war and constraints of public budgets, our community continued to find the way forward."

From its humble wartime beginnings in Army barracks to the new, state-of-the-art William P. Clements Jr. University Hospital, UT Southwestern has continually broadened this legacy through its unique partnership with the Foundation.

"For more than 75 years, the Foundation has fostered a unique culture in which generosity has been infused with purpose," said Dr. Daniel K. Podolsky, President of UT Southwestern. "The Foundation currently manages more than \$800 million across 1,000 funds,

"For more than 75 years, the Foundation has fostered a unique culture in which generosity has been infused with purpose." – Dr. Daniel K. Podolsky

creating a financial resource that will enable advances in science, education, and treatment that benefit the residents of Texas, the nation, and beyond for years to come."

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.



In Memoriam

Dr. Alfred G. Gilman,
Nobel Laureate: 1941-2015

Nobel Laureate Inspired Generations

By Dr. David Mangelsdorf and Dr. Rama Ranganathan

On Dec. 23, Nobel Laureate Dr. Alfred Goodman Gilman died peacefully at home after a long battle with pancreatic cancer. Although Dr. Gilman's contributions to science were extraordinary by all standards, anyone who



Dr. Alfred G. Gilman, former Chair of Pharmacology, Dean of the UT Southwestern Medical School, and Executive Vice President for Academic Affairs and Provost at UT Southwestern Medical Center.

trained or worked closely with Al knew him as much more than a brilliant scientist. His greatness extended equally to scientific leadership, to mentorship of young scientists, and to a relentless pursuit of scientific discovery.

Basic science and its application to medicine were in Al Gilman's blood from birth. Al was born on July 1, 1941, in New Haven, Connecticut, the same year his father, Dr. Alfred Gilman, along with Dr. Louis

Goodman, published the first edition of the pre-eminent textbook *The Pharmacological Basis of Therapeutics*. Years later, Al would continue his father's work as editor of the famous textbook through four subsequent editions.

He received a bachelor of science summa cum laude from Yale University in 1962 and his M.D. and Ph.D. degrees from Case Western Reserve University in 1969 under Dr. Theodore Rall, where his lifelong interest in understanding how cells perceive and process external signals began. Dr. Rall had previously contributed to the discovery of cyclic AMP, a key signaling molecule produced within cells in response to hormones such as epinephrine. Starting as a postdoctoral fellow in the laboratory of Nobel Laureate Dr. Marshall Nirenberg and then later in his own lab at the University of Virginia in Charlottesville, Al set out to elucidate the molecular components that linked hormone sensing to synthesis of cAMP. Together with Drs. Elliott Ross and Paul Sternweis, now Professors of Pharmacology at UT Southwestern, he purified the missing component from normal cells. This protein was called Gs, the first of what would become a large family of protein switches – G proteins – that control information flow in many other hormone- and light-mediated signaling events within cells.

Al's early successes led to his recruitment by indomitable forces – Drs. Donald Seldin, Kern Wildenthal, Michael Brown, and Joseph Goldstein – to come to UT Southwestern in 1981, where at the age of 40 he was appointed Chair of Pharmacology, a position he held for 25 years. He continued a remarkable progression of work that elucidated virtually every step in the G protein signaling cycle. The impact on basic biology and medicine was transcendent, and it led to a number of accolades, including election to the National Academy

of Sciences (1985), the Albert Lasker Basic Medical Research Award (1989), and the Nobel Prize in Physiology or Medicine, which he shared with Dr. Martin Rodbell (1994).

Al was an exceptional scientist, but as junior colleagues who knew him closely, we would be greatly remiss if we stopped there. In addition to his scientific excellence, he built one of the finest basic science departments in the country – a place that was academically rigorous, highly productive, and fun. The underlying principle was the dictum, in his own words, “to hire only excellent people.” The turn of phrase is subtle but important. It was not sufficient to merely have an impressive pedigree or to be a star scientist; it was also necessary to be a good communicator, to demonstrate citizenship, to be willing to teach, and to contribute to the quality of life within the Department. Al refused to weigh scientific quality against character, as if deficiencies in one could be counterbalanced by an overabundance of the other. The result was an unusually vibrant Department full of excellent people – in the Gilman sense – in which incisive professional criticism was supported and encouraged but somehow always delivered in a manner that was cordial, respectful, and, ultimately, productive.

In the final stages of his career, Al took on institutional leadership roles. In 2004, he was named Dean of UT Southwestern Medical School, and in 2006 he became Executive Vice President for Academic Affairs and Provost. In 2009, Al retired from UT Southwestern to become the Chief Scientific Officer of the Cancer Prevention and Research Institute of Texas (CPRIT), a job that he felt would permit him to use his talents of scientific insight, integrity,

and institutional vision to fund one of the largest research efforts in the nation to battle cancer. True to his principles, this effort was characterized by rigorous scientific review, was staffed by the best people in science, and was uncompromising in its goals of funding the best work. Anything less was unacceptable.

There are great scientists, and there are great human beings. Al, in rare form, was both. With his passing, one can hope that the principles of excellence “in the Gilman sense” will live on in good departments of biological research.

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

Dr. Goldstein, a Regental Professor and Chair of Molecular Genetics, holds the Julie and Louis A. Beecherl, Jr. Distinguished Chair in Biomedical Research and the Paul J. Thomas Chair in Medicine.

Dr. Mangelsdorf, Chair of Pharmacology and a Howard Hughes Medical Institute Investigator, holds the Alfred G. Gilman Distinguished Chair in Pharmacology and the Raymond and Ellen Willie Distinguished Chair in Molecular Neuropharmacology in Honor of Harold B. Crasilneck, Ph.D.

Dr. Ranganathan, Director of the Cecil H. and Ida Green Comprehensive Center for Molecular, Computational, and Systems Biology, holds the Cecil H. and Ida M. Green Chair in Biomedical Science.

Dr. Ross holds the Greer Garson and E.E. Fogelson Distinguished Chair in Medical Research.

Dr. Seldin, Chairman Emeritus of Internal Medicine and UT System Professor of Internal Medicine, holds the William Buchanan Chair in Internal Medicine.

Dr. Sternweis holds the Alfred and Mabel Gilman Chair in Molecular Pharmacology.

Dr. Wildenthal is President Emeritus and Professor of Medicine Emeritus.

Annual Review

2015

72

NEW APPOINTMENTS
MAJOR GIFTS

76

FINANCIAL STATEMENT

80

GIFT REPORT

NEW APPOINTMENTS FOR 2014-2015

The following individuals were appointed to endowed positions or to major leadership positions at UT Southwestern during the past fiscal year.

- Dr. Ravi Bhoja, to the Anesthesiology Alumni Professorship.
- Dr. Perry Bickel, to the Daniel W. Foster, M.D. Distinguished Chair in Internal Medicine.
- Charles Cobb, to Assistant Vice President, Materials Management.
- Dr. Gaudenz Danuser, to Chair of the new Lyda Hill Department of Bioinformatics.
- Dr. Amanda Fox, to the A.H. “Buddy” Giesecke, Jr., M.D. Distinguished Professorship in Anesthesiology and Pain Management.
- Dr. Gerald Greil, to the Pogue Family Distinguished Chair in Pediatric Cardiology.
- Suresh Gunasekaran, to Associate Vice President and Chief of Operations for Health System Affairs.
- Susan Hernandez, to Chief Nursing Executive, UT Southwestern University Hospitals.
- Dr. Jay Horton, to Director of the Center for Human Nutrition, and to the Scott Grundy Director’s Chair, the Center for Human Nutrition Director’s Endowed Chair, and the Distinguished Chair in Human Nutrition.

- Dr. Jeffrey Kenkel, to Chair of Plastic Surgery, and to the Betty and Warren Woodward Chair in Plastic and Reconstructive Surgery.
- Dr. Naim Maalouf, to The Frederic C. Bartter Professorship in Vitamin D Research.
- Dr. John MacMillan, to the Martha Steiner Professorship in Medical Research.
- Dr. Bradley Marple, to Chair of Otolaryngology – Head and Neck Surgery.
- Dr. Bruce Meyer, to the T.C. Lupton Family Professorship in Patient Care, in Honor of Dr. John Dowling McConnell and Dr. David Andrew Pistenmaa.
- Dr. Mack Mitchell, to Associate Vice President for Population Health and Chief Medical Officer for UT Southwestern Accountable Care Network.
- Dr. Jessica Moreland, to the Thomas Fariss Marsh, Jr. Chair in Pediatrics.
- Dr. Dorothy Sendelbach, to Assistant Dean for Undergraduate Medical Education.
- Kimberly Siniscalchi, to Vice President for Strategic Initiatives.
- Cameron Slocum, to Vice President and Chief Operating Officer for Academic Affairs.
- Ivan Thompson, to Vice President for Human Resources.

- Dr. Dwight Towler, to the J.D. and Maggie E. Wilson Distinguished Chair in Biomedical Research.
- Dr. Jon Williamson, to Dean of UT Southwestern School of Health Professions.
- Dr. Chengcheng “Alec” Zhang, to the Hortense L. and Morton H. Sanger Professorship in Oncology.
- Dr. Wenxin Zheng, to the Mark and Jane Gibson Distinguished Professorship in Cancer Research.

MAJOR GIFTS 2014-2015

Philanthropists continued to demonstrate their commitment to UT Southwestern in 2014-2015, providing support for a variety of research, clinical, and educational programs.

Major new pledges and gifts received in the fiscal year 2014-2015 included:

- \$25,000,000 from Lyda Hill to establish the Lyda Hill Department of Bioinformatics.
- \$25,000,000 from W.A. “Tex” Moncrief Jr. to support the UT Southwestern Monty and Tex Moncrief Medical Center at Fort Worth.
- \$15,000,000 from the Hamon Charitable Foundation to support neuroimaging in the Advanced Imaging Research Center.

- \$5,000,000 from the W.W. Caruth Jr. Foundation to support the Dallas Depression Early Recognition and Prevention Study.
- \$5,000,000 from The Hersh Foundation to Southwestern Medical Foundation to support the Center for Depression Research and Clinical Care.
- \$5,000,000 from Mr. and Mrs. Alfred M. Pogue to Southwestern Medical Foundation to support Alzheimer’s disease clinical research and care and establish the Pogue Family Distinguished Chair in Alzheimer’s Disease Clinical Research and Care, in Memory of Maurine and David Weigers McMullan.
- \$3,944,141 from the estate of Joan Newton Caulder to support therapeutic oncology research.
- \$3,235,700 from the Margolin/Cox Estates and Trusts to Southwestern Medical Foundation to support cancer research.
- \$2,400,000 from the Harry S. Moss Heart Trust to support cardiovascular research and care.
- \$2,221,132 from the proceeds of the 2015 Sweetheart Ball to support cardiology research and care.
- \$2,000,000 from Dr. Jean Wilson to establish the J.D. and Maggie E. Wilson Distinguished Chair in Biomedical Research.

- \$1,250,000 from Presbyterian Village North Foundation to Southwestern Medical Foundation to establish the Presbyterian Village North Foundation Distinguished Chair in Alzheimer’s Disease Therapeutic Research, as well as to support Alzheimer’s vaccine research.
- \$1,035,000 from The Decherd Foundation to support brain regeneration research and establish the Maureen H. Decherd Fund for Neurosurgical Innovation, in Honor of Duke Samson, M.D.
- \$1,018,330 from the Rainwater Charitable Foundation to Southwestern Medical Foundation to support tau research.
- \$1,015,000 from Mr. and Mrs. Kent B. Foster to establish the Kent and Jodi Foster Distinguished Chair in Endocrinology, in Honor of Daniel Foster, M.D.
- \$1,001,011 from Linda and Mitch Hart to Southwestern Medical Foundation to equip and name an epilepsy monitoring unit and operating room at Zale Lipshy University Hospital, in honor of Bruce Mickey, M.D.
- \$1,000,962 from an anonymous donor to establish a Distinguished Chair in Urology for Urologic Reconstruction, in Honor of Allen F. Morey, M.D.



- \$1,000,000 from Dr. and Mrs. Roger H. Mendelson to establish the Mendelson-Young Endowment for Cancer Therapeutics.
- \$999,333 from the Estate of Barbara L. Meyer to Southwestern Medical Foundation to support research.
- \$866,422 from the March of Dimes Birth Defects Foundation to support research.
- \$712,128 from the estate of Rollin W. King to Southwestern Medical Foundation to support liver disease research.
- \$700,250 from the Burroughs Wellcome Fund to support research.
- \$629,516 from the Cystic Fibrosis Foundation Therapeutics Inc. to support research.
- \$610,000 from the David M. Crowley Foundation to support research in the areas of cancer, neurological surgery, sports concussion, macular degeneration, and digestive diseases, as well as to support the Facial and Reanimation Program and the David M. Crowley Research and Rehabilitation Laboratory.

- \$557,930 from the Alliance for Lupus Research to support research.
- \$525,000 from the David and Lucile Packard Foundation to support research.
- \$510,000 from Lucy C. and Henry M. Billingsley to support dermatological disorders research and cancer genetics research.
- \$497,777 from Dr. David Pillow to Southwestern Medical Foundation to establish the Pillow Family Medical Student Scholarship Fund.
- \$483,970 from the Clayton Foundation for Research to support research.
- \$483,188 from the Leukemia and Lymphoma Society to support research.
- \$480,000 from Mrs. Eugene McDermott, Mary McDermott Cook, and the Eugene McDermott Foundation to help establish the Alfred G. Gilman Distinguished Chair in Pharmacology, as well as to support research initiatives.

- \$479,937 from the National Multiple Sclerosis Society to support MS research.
- \$425,000 from the Lupe Murchison Foundation to Southwestern Medical Foundation to support student scholarships.
- \$385,474 from the American Diabetes Association Research Foundation to support diabetes research.
- \$346,624 from the Muscular Dystrophy Association to support research and the MDA Clinic at UT Southwestern.
- \$338,500 from the Lawrence Ellison Foundation to support research.
- \$334,941 from the Juvenile Diabetes Research Foundation International to support diabetes research.
- \$325,000 from the Charles Y.C. Pak Foundation to support mineral metabolism research.
- \$315,987 from Fondation Leducq to support obesity and cardiovascular research.



- \$314,072 from Carl J. Johnson, Ph.D., to establish the Margot A. Johnson Lung Cancer Research Fund.
- \$300,000 from Shirley L. Holladay to establish the Dr. George E. Holladay Memorial Resident Training Fund in Ophthalmology.
- \$300,000 from the Gordon and Betty Moore Foundation to support research.
- \$277,500 from the Damon Runyon Cancer Research Foundation to support cancer research.
- \$265,000 from the V Foundation for Cancer Research to support cancer research.
- \$260,000 from Mr. and Mrs. James R. Huffines to Southwestern Medical Foundation to support construction of the William P. Clements Jr. University Hospital, as well as to support education, research, and clinical care programs.

- \$250,000 from the American Society of Nephrology to support kidney research.
- \$250,000 from an anonymous donor to help establish the Alfred G. Gilman Distinguished Chair in Pharmacology.
- \$250,000 from H.E. Butt Grocery Company to Southwestern Medical Foundation to support construction of the William P. Clements Jr. University Hospital.
- \$250,000 from Ute Schwarz Haberecht and Rolf R. Haberecht, Ph.D., to help establish the Alfred G. Gilman Distinguished Chair in Pharmacology.
- \$250,000 from the Patrick and Beatrice Haggerty Foundation to support stroke research.
- \$250,000 from Dr. and Mrs. Mark L. Lemmon to support clinical programs, in honor of John Warner, M.D.

- \$250,000 from the Lupus Research Institute to support lupus research.
- \$250,000 from Margaret M. Yin to establish the Yin Quan-Yuen Distinguished Professorship in Nephrology.

Generous contributions and pledges of \$100,000 to \$249,999 were received from a number of additional donors, including the following new commitments from:

- Alex's Lemonade Stand Foundation to support cancer research.
- Rita Allen Foundation to support research.
- American Association for Cancer Research Inc. to support cancer research.
- An anonymous donor to support high-impact/high-risk research.
- An anonymous donor to support multiple sclerosis research.
- An anonymous donor to support the patient navigator program and lung cancer research.

- Big D Powderpuff Tackling Alzheimer's Inc., dba BvB Dallas to support Alzheimer's disease research.
- Mr. and Mrs. Harold M. Brierley to support biomedical research.
- Mr. and Mrs. H. Ray Calvert to establish the H. Ray and Paula Calvert Fund in Gastroenterology Oncology, in Honor of Udit Verma, M.D.
- Amon G. Carter Foundation to support metabolism research.
- Mr. and Mrs. Leland W. Carter to support clinical programs, in honor of Steven Leach, M.D.
- Chicago Community Trust/Searle Funds to support research.
- Amy W. Cole and John A. Cole to support prostate cancer research and the R. Ellwood Jones III, M.D. Distinguished Professorship.
- Crohn's & Colitis Foundation of America Inc. to support research.
- Curing Kids Cancer Inc. to support Ewing sarcoma research.
- The estate of David D. Emmett to Southwestern Medical Foundation to support research.
- The Michael J. Fox Foundation for Parkinson's Research to support research.
- Dr. and Mrs. Adi F. Gazdar to support cancer research.

- Mr. and Mrs. Mark D. Gibson, through The Melchizedek Fund of Communities Foundation of Texas, to Southwestern Medical Foundation to support education, research, and clinical care.
- Dr. and Mrs. Alfred G. Gilman to establish the Gilman Family Fund to support pharmacology research.
- Mr. and Mrs. Irwin J. Grossman to Southwestern Medical Foundation to support diabetes research.
- David C. Haley to Southwestern Medical Foundation to support research.

- Howard Hughes Medical Institute for research equipment.
- The Mary Kay Foundation to support ovarian cancer research.
- Sidney Kimmel Foundation for Cancer Research to support cancer research.
- Klarman Family Foundation to support research.
- Susan G. Komen for the Cure to support mobile mammography outreach and cancer research.
- Life Sciences Research Foundation to support research.

- David B. Miller Family Foundation to Southwestern Medical Foundation to support programs in medical education, research, and clinical care.
- Monteris Medical Inc. to support research.
- The estate of Debra Sue Payne to support nutrition research.
- Pew Charitable Trusts to support research.
- Pollock Foundation to Southwestern Medical Foundation to support construction of the William P. Clements Jr. University Hospital.

- The estate of Tom B. Rhodes to Southwestern Medical Foundation to support research.
- Will Rogers Motion Picture Pioneers Foundation to support a research fellowship.
- Darrell K Royal Research Fund for Alzheimer's Disease.
- Mary R. Saner Charitable Trust to support patient care.
- Sons of the Flag to support a fellowship in burn care.
- Spondylitis Association of America to support research.
- St. Paul Medical Foundation to support the Transcatheter Aortic Valve Replacement Program.
- The estate of W.L. Todd Jr. to Southwestern Medical Foundation to support research.
- Walsh Foundation to support UT Southwestern's Moncrief Cancer Institute.
- Lori K. Winter to support the Michael H. Winter Fund for Physical Medicine and Rehabilitation.
- The Ivor and Mildred Wold Charitable Fund of Communities Foundation of Texas to Southwestern Medical Foundation to support the Mildred Wyatt and Ivor P. Wold Center for Geriatric Care.



- The Hartwell Foundation to support the Hartwell Individual Biomedical Research Award.
- The estate of Adelyn J. Hoffman to Southwestern Medical Foundation to support the Hoffman Family Center in Genetics and Epidemiology.

- Nancy W. Marcus to Southwestern Medical Foundation to support the Nancy W. Marcus Fellowship in Gastroenterology, in Honor of Mack C. Mitchell, Jr., M.D.
- Peter G. McGuire to Southwestern Medical Foundation to support research.

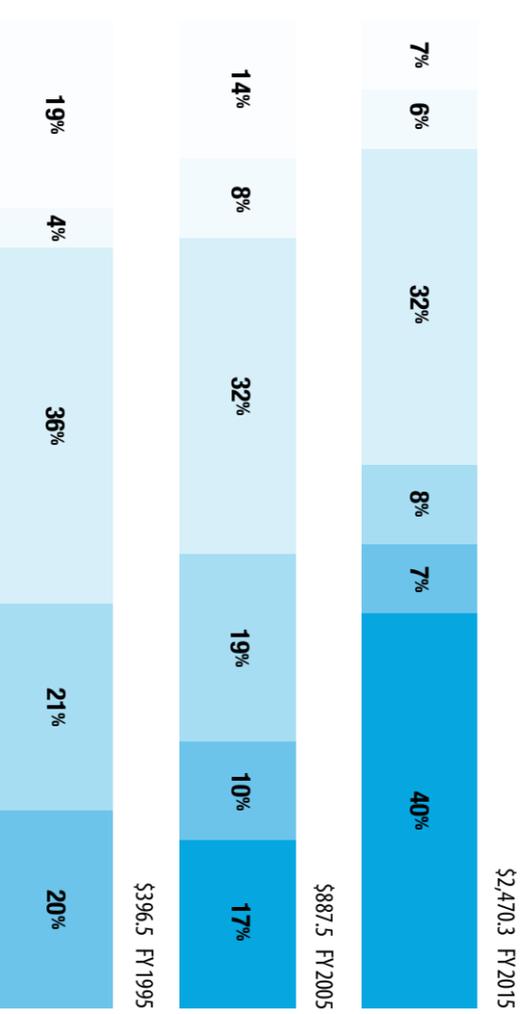
- Research to Prevent Blindness Endowment Fund Inc. to support ophthalmologic research.
- Mr. and Mrs. Jack Reynolds to Southwestern Medical Foundation to support programs in medical education, research, and clinical care.

FINANCIAL STATEMENT

	For Current Operations	For Capital Purposes	Total
Individuals	\$19,040,072	\$8,768,621	\$27,808,693
Foundations	\$83,109,114	\$20,498,675	\$103,607,789
Corporations	\$8,127,843	\$3,874,099	\$12,001,942
Other Organizations	\$4,408,855	\$1,415,691	\$5,824,546
TOTAL	\$114,685,884	\$34,557,086	\$149,242,970

Summary of Gift Support for UT Southwestern

Fiscal Year 2014-2015 (Ending Aug. 31, 2015)



Sources of Operational Funds

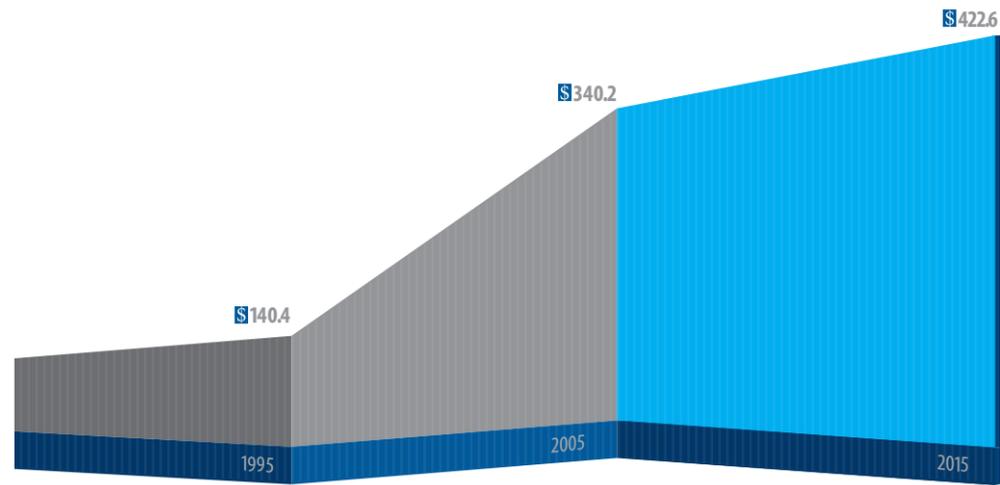
\$ millions

SOURCES OF FUNDS The "Sources of Funds" graph displays the growth in UT Southwestern funding during the past 20 years and identifies the funding elements available for operational support. As a percentage of total funding, direct appropriations of state funds to UT Southwestern have decreased from 20 percent of total sources in 1995 to 7 percent in 2015 (11.7 percent if hospital revenues are omitted). Conversely, faculty clinical earnings have increased substantially during this same time period (accompanied by a similar increase in the volume of charity care provided by the faculty). Philanthropic funds (including endowment distributions) have also increased significantly, from 4 percent of the institution's operating funds in 1995 to 6 percent in 2015 (10.8 percent if hospital revenues are omitted). The acquisition of Zale Lipshy University Hospital and St. Paul University Hospital (since replaced by William P. Clements Jr. University Hospital) on Jan. 1, 2005, and the consolidation of their operations within the Medical Center, have resulted in an increase in UT Southwestern operating revenues (and expenditures). This increase in hospital revenues caused a reduction in the percentage of all other sources of funds.

Note: Methodology updated in FY14; converted prior years to new methodology. Updated percentages may not agree with originally published percentages.

*Tuition, Fees, Interest Earnings, Asset Appreciation, Contracts for Services, Auxiliary Enterprises, Other Revenues.

**Does not include gift support for capital purposes.



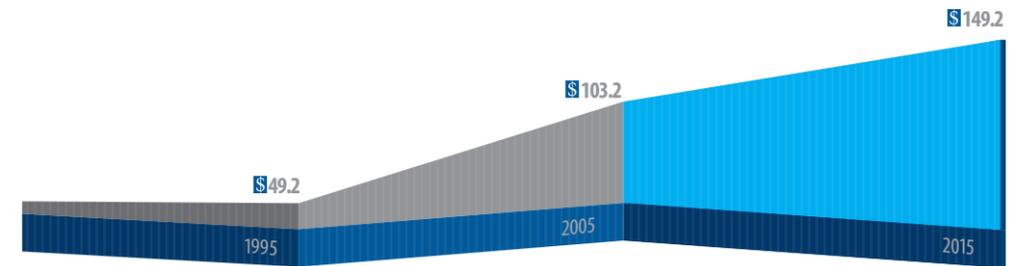
Research Expenditures

\$ millions

The "Research Expenditures" graph reflects UT Southwestern's growth in research in the past 20 years from federal, state, and private research grants.

Includes expenditures from Howard Hughes Medical Institute and Veterans Affairs Medical Center.

PHILANTHROPY

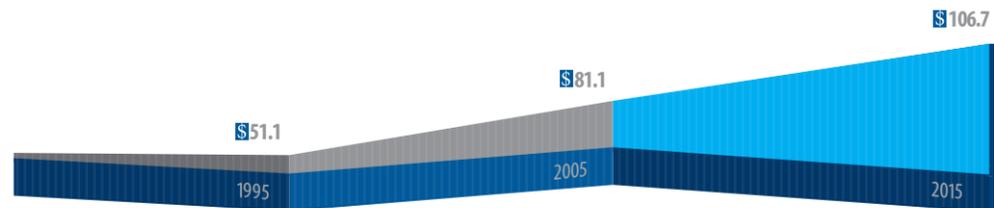


Private Gift Support

\$ millions

The "Private Gift Support" graph reflects growth over the past 20 years in the total annual donations to UT Southwestern from individuals, foundations, and corporations for operations, endowments, and facilities. (See "Summary of Gift Support" table on page 76 for further information.) This growth has been a vital component in UT Southwestern's success in maintaining the highest possible standards of excellence in research, teaching, and clinical care.

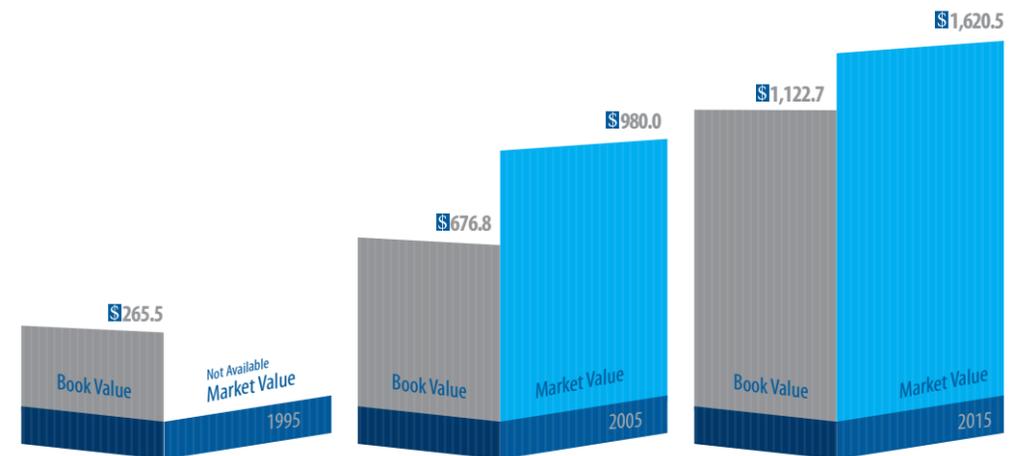
These totals include gifts received by Southwestern Medical Foundation and St. Paul Medical Foundation that were designated for use at UT Southwestern.



Cost of Uncompensated Care

\$ millions

Uncompensated Care includes the unreimbursed costs for the uninsured (those with no source of third-party insurance) and the underinsured (those with insurance who after contractual adjustment and third-party payments have a responsibility to pay for an amount they are unable to pay). Uncompensated care also includes the unreimbursed cost from governmental sponsored health programs.



Endowment Value

\$ millions

The "Endowment Value" graph illustrates the dramatic increase in private support for UT Southwestern through endowed funds during the past 20 years. Endowment earnings provide essential sources of growth funds, on which UT Southwestern relies for long-term enhancement of its programs.

These totals include endowed funds held by the UT System, Southwestern Medical Foundation, St. Paul Medical Foundation, and Moncrief Cancer Foundation on behalf of UT Southwestern.

UTSouthwestern
Medical Center

The future of medicine, today.