



CHARTING PROGRESS

SAN ANTONIO MEDICAL FOUNDATION • *Founders and Directors of the South Texas Medical Center*

Foundation Approves Research Grants for Collaborative Projects

The San Antonio Medical Foundation Board of Trustees has approved three grants totaling \$403,750 to local bioscience research teams representing four institutions.

Scientists from UT Health San Antonio and UTSA received a \$150,000 grant for a project to investigate an early stem cell analysis that could lead to development of drugs targeting Parkinson's disease.

A second team from the same two institutions was awarded a grant of \$103,750 to investigate gold nanoparticles for dual usage in CT imaging and radiation therapy in treating cancer.

The third grant of \$150,000 was given to a team from South Texas Blood & Tissue Center, UT Health SA and the Southwest Texas Regional Advisory Council to develop a functional cold

storage unit for whole blood products and to implement a sustainable pre-hospital transfusion program for trauma patients.

The San Antonio Medical Foundation established the grant program in 2016 to encourage collaboration among San Antonio healthcare and bioscience entities by providing seed money for new collaborative initiatives.

"Our goal is to encourage more interconnectivity among our local institutions, building on the strengths of San Antonio bioscience research and development and leveraging those strengths through collaborative efforts," said Foundation Trustee Stephanie Chandler, who chaired the Collaborative Grant Selection Committee. The 12-member committee reviewed a record 27 grant applications this year.

Children's Heart Center Continues Services with New Facilities

San Antonio and South Texas have a major amenity for treating children with congenital heart problems. University Children's Health/Heart Center at University Hospital offers nationally recognized treatment for heart patients from birth to adulthood.

The family-focused services have undergone a dramatic evolution with their move to the 9th floor of the Horizon Tower at University Hospital in April. Part of University Children's Health, the Children's Heart Center has been providing services for three decades but now has entered a new era that builds on a national reputation.

Children's Heart Center 2015-16 National Recognition

- Ten peer-reviewed publications and book chapters.
- Designated Center of Excellence by three health insurance providers.
- Invited presentations at national and international conferences on academic components of congenital heart disease.
- Lead institution in a multi-institutional study concerning factors contributing to sternal wound infections.

The Heart Center at University Children's Health is the only dedicated comprehensive inpatient and outpatient pediatric cardiac center in South Texas and is one of just 19 programs in the nation designated as a Center of Excellence by the insurance provider Optum. It also holds a Center of Excellence Distinction with Aetna and Superior and is the only program in the region holding this designation from three providers.

With clinics in El Paso, Laredo and the Rio Grande Valley, the program has grown as it provides surgical clinics where patients live. More than 50 percent of patients served now live outside Bexar County.

At University Hospital in the South Texas Medical Center, the Children's Heart Center includes 18 variable acuity patient rooms where technologically advanced, intensive patient care is provided. An important aspect of the care involves the multidisciplinary team that allows the child to recover in the same room throughout the hospital stay.

Besides its excellent patient services, the Heart Center focuses on family members. Four hotel-like rooms on the same floor as the patient care rooms allow family members to stay just steps away from their children. Other amenities include kitchen and laundry facilities and a social area with a library.

Under the leadership of two pediatric cardiothoracic surgeons who are board certified in both adult and pediatric cardiothoracic surgery, the program has a mortality rate of just 1.42 percent compared with the national average of 3.1 percent. The program consistently ranks in the top two of quality metrics in pediatrics.

"The Children's Health Center is academically based and focused on clinical excellence," said Adil Husain, M.D., chief of pediatric cardiothoracic surgery at UT Health San Antonio and surgeon-in-chief of pediatric services at University Health System. He cites the three decades of ties to what was previously known as the University of Texas Health Science Center at San Antonio where he is professor in the Department of Cardiothoracic Surgery. Dr. Husain also is the William Randolph Hearst chair for congenital heart disease; the Hearst organization provided funds directed toward creating the Heart Center.

John H. Calhoun, M.D., professor and chair of the Department of Cardiothoracic Surgery and director of the San Antonio Heart and Vascular Institute, has clinical expertise in congenital heart surgery, adult cardiac surgery and pulmonary transplantation.

UT Health Scientists Work on Diabetes Cure

Scientists at UT Health San Antonio have cured diabetes in mice, a major step toward a potential cure for Type 1 diabetes in humans and a new approach that also might allow Type 2 diabetics to stop insulin shots.

These major breakthroughs rely on increasing the types of pancreatic cells that secrete insulin. The researchers have a goal to reach human clinical trials in three years but first must test the strategy in large animal studies at an estimated cost of \$5 million.

Following those studies, the co-inventors, Bruno Doiron, Ph.D., and Ralph DeFronzo, M.D., can apply to the U.S. Food and Drug Administration for approval of an investigational new drug.

The scientists received a U.S. patent in January, and UT Health San Antonio is spinning out a company to begin commercialization.

"It worked perfectly," said Doiron, assistant professor of medicine at UT Health. "We cured mice for one year without any

side effects. But it's a mouse model, so caution is needed. We want to bring this to large animals that are closer to humans in physiology of the endocrine system."

Insulin lowers blood sugar and is made only by beta cells. In Type 1 diabetes, beta cells are destroyed by the immune system and the person has no insulin. In Type 2 diabetes, beta cells fail and insulin decreases. At the same time, in Type 2, the body doesn't use insulin efficiently.

"The pancreas has many other cell types besides beta cells, and our approach is to alter these cells so that they start to secrete insulin, but only in response to glucose [sugar]," said DeFronzo, professor of medicine and chief of the Division of Diabetes.

The therapy is accomplished by gene transfer. A virus is used as a vector, or carrier, to introduce selected genes into the pancreas. These genes become incorporated and cause digestive enzymes and other cell types to make insulin.

Gene transfer using a viral vector has been approved nearly



50 times by the U.S. Food & Drug Administration to treat various diseases and is proven in treating rare childhood diseases, said DeFronzo.

Unlike beta cells, which the body rejects in Type 1 diabetes, the other cell populations of the pancreas co-exist with the body's immune defenses.

"If a Type 1 diabetic has been living with these cells for 30, 40 or 50 years, and all we're getting them to do is secrete insulin, we expect there to be no adverse immune response," said DeFronzo.

START Drug Gets Approval

The U.S. Food and Drug Administration granted accelerated approval for a cancer treatment based on a common biomarker rather than the location in the body where the tumor originated.

The drug, Keytruda (pembrolizumab), which was first tested at START in the South Texas Medical Center, is now approved for treating solid tumors in any organ as long as the malignancy bears a specific genetic signature.

"Precision medicine" holds that cancer therapies should target a tumor's specific molecular fingerprint rather than attacking healthy cells in the process of reaching malignant ones, as most therapies do.

"We were the first researchers to work with this drug, and it is now a part of the standard of care for many cancers," said Dr. Anthony Tolcher, clinical director for START.

Garden to Focus on Mental Health Healing

When opened in mid-fall, the Ecumenical Center's Seeds of Hope Garden will provide an oasis of tranquility in the middle of

the South Texas Medical Center. While providing a quiet spot for the center's mental health therapy programs, the garden also will be open to the community for individual contemplation.

Located behind the Ecumenical Center for Religion and Health at the corner of Wurzbach and Ewing Halsell, the garden offers a natural environment as an auxiliary setting for mental health healing.

"The literature identifies the usefulness of providing different clinical environments," said Mary Beth Fisk, executive director of the Ecumenical Center. "Nature is very effective in reducing stress levels."

Among the garden's features will be areas for children's play therapy, a butterfly garden, gathering spots for groups and families as well as individual meditation and contemplation areas.

The grand opening celebration is scheduled for Nov. 2 when the Ecumenical Center will celebrate 50 years of serving San Antonio in the South Texas Medical Center.

The San Antonio Medical Foundation, the organization responsible for the stewardship of the South Texas Medical Center property, has provided a matching grant for the development of the Seeds of Hope Garden.

LifeCare Marks 10 Years

LifeCare Hospitals of San Antonio is celebrating 10 years of providing services in the South Texas Medical Center. Located at 8902 Floyd Curl Drive, LifeCare specializes in treating medically complex patients who require extended hospitalization. The hospital is licensed for 62 beds and has a medical staff of more than 250 physicians

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