



REMEMBERING THE PAST,
EMBRACING THE FUTURE

75TH
1941-2016

REMEMBERING THE PAST,
EMBRACING THE FUTURE



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RESEARCH INSTITUTE

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A LETTER FROM THE PRESIDENT

Larry Schlesinger, M.D.

In 2016, Texas Biomed celebrated 75 years of groundbreaking research and innovation. The Institute has a rich history of exploration and discovery, starting with its founder, Thomas B. Slick, Jr. Every day, the people at Texas Biomed are turning his vision of a “great center for human progress” into reality, and I am excited to have joined the team.

While I have just begun my tenure as President/CEO of Texas Biomed, I see the strengths of the Institute as the foundation for growth, and I see our challenges as opportunities. These are exciting times in biomedical research with major breakthroughs in discoveries and technology platforms. Having said this, scientific advances are progressing at a faster pace and this fact, combined with the changing forces in funding biomedical research, necessitate that scientific institutes readily adapt to these changing forces, have infrastructure that is contemporary and well equipped

with technology, and support a culture that optimizes interdisciplinary research in all respects.

Because of its rich history and unique capabilities, Texas Biomed can compete effectively, even in a highly competitive, underfunded environment. We have an opportunity as a private, nonprofit research institute to gain a sustainable competitive advantage provided that we have a clear vision and effective strategic plan. This will require change.

We have biocontainment facilities unlike anywhere else in the country tied to a National Primate Research Center. With these unique resources as our cornerstone, we have the opportunity to create a master-planned institute with a greater focus on discovery-based science leading to new diagnostics, therapies and vaccines!

Our greatest strength is our people – our staff, our board and our supporters. We are united in our goal of making

discoveries that impact lives, and we will continue to make strong investments in the environment and the development of our people for the sake of improving human health. Over the next few years, we aim to add to our team of scientists and encourage the development of junior researchers, so that we are also known as a place that not only shapes science but shapes scientists.

Change takes time, but with the right people, a strong plan and the support of the community, we can truly make today’s discoveries possible of becoming tomorrow’s cures.



Larry Schlesinger, M.D.
President and CEO



“Our greatest strength is our people – our staff, our board and our supporters. We are united in our goal of making discoveries that impact lives, and we will continue to make strong investments in the environment and the development of our people for the sake of improving human health.”





75 YEARS of Changing the World

Throughout our history, Texas Biomedical Research Institute has aimed to unravel the mysteries of chronic and infectious diseases through innovative thinking, creative problem solving and cutting-edge technologies.

PIONEER OF THE POSSIBLE

*Thomas Baker Slick, Jr.
1916 – 1962*

By Catherine Nixon Cooke

Seventy-five years ago, when Thomas Baker Slick, Jr., established what is today the Texas Biomedical Research Institute, he moved his favorite dream from the realms of his imagination into the real world. He envisioned San Antonio becoming a future “Science City” in the heart of Texas, and the new research institute was the first step. At just twenty-five years old, the Phi Beta Kappa graduate of Yale University already was committed to “giving back” to his community and beyond; and he believed that scientific research was the most powerful way to make the world a better place.

Born in Clarion, Pennsylvania on May 6, 1916, Tom Slick was the son of the largest independent oil operator in the world. His father had discovered the huge Cushing Field in Oklahoma in 1912; and new oil exploration kept him traveling much of the time. His mother was the daughter of Joseph Frates, an entrepreneur who had moved his family around the country many times; so she understood her husband’s absences and wanderlust. When the famous “King of the Wildcatters” was at home, he delighted in his three children, Tom, Betty, born in 1917, and Earl, born in 1920, and instilled in them a spirit of adventure and curiosity, as they explored the Pennsylvania woods that surrounded their house; and later looked for “ghosts” in the attic of a new home in Oklahoma City.

Tragedy struck in 1930, when Slick, Sr., died of a stroke at only forty-six years old. His family inherited tremendous wealth, during a time that most of the



*“I don’t believe in failure...
only in outcome.”*

– Tom Slick to a struggling inventor, 1952

“On the whole, I can’t say that I have found life dull; and I manage to keep interested in quite a lot of things.”

– Tom Slick to a Yale classmate, 1956



Leroy Denman and Tom Slick signing documents for what became Texas Biomedical Research Institute.



Tom Slick (second from left), Dr. Nicholas Werthessen and Dr. Harold Vagtborg (right) discuss the future of the institution.

nation was feeling the austerity of the Great Depression. Along with that wealth came a strong sense of responsibility for others – something young Tom Slick felt from an early age. He attended Phillips Exeter Academy in New Hampshire, where as captain of the debate team, he delighted in looking at problems from a variety of perspectives – fueling an open-mindedness that would dominate his adult years. He found even more excitement dabbling in the school’s state-of-the-art chemistry laboratory; and he carried his growing interest in science to Yale University, where he pursued pre-medicine and was especially interested in the possibilities of cross-breeding, which would later result in a major contribution to the cattle industry.

As a college student, Tom was fascinated by more sensational possibilities. He traveled to Scotland with fraternity brothers to investigate stories about the Loch Ness monster. And, after reading an article in Ripley’s Believe It Or Not, about a farmer who claimed to have

bred a “cross between a hog and a goat,” he sought out the farmer, bought the “hoat,” and took it to his mother’s farm in Oklahoma. Many years later, the adventure became a favorite family story that Betty Slick Moorman always told with a smile, adding that “luckily for all of us, Tom’s scientific interests began to find expression in other ways.”

In 1934, Tom Slick’s widowed mother married her brother-in-law, Charles Urschel, whose wife had died a few years earlier. Young Tom, Betty and Earl gained a new sibling, Charles Urschel, Jr., who was also their first cousin. The new expanded family blended happily, but faced its first crisis when gangster “Machine Gun Kelly” kidnapped the senior Urschel and held him for ransom. His rescue was dramatic and successful, ending with the capture and imprisonment of Kelly. After the ordeal, the Urschels left Oklahoma City and built a beautiful home in San Antonio, designed by renowned architect John Staub.

When Tom Slick was twenty-four years old, he bought a sixteen-hundred-acre tract of land on the outskirts of his new hometown; and over the next year, he acquired more land in the area, including the five-thousand-acre Cable Ranch. He named his new ranch ESSAR, an acronym of sorts, reflecting his interest in science (“ESS” or “S”) and research (“AR” or “R”); and he was ready to move forward with his dream of creating a “Science City.”

Just one week after Pearl Harbor was bombed by the Japanese, Slick established the first of five research institutes that he would found before he was forty years old. He named it the Foundation of Applied Research, and endowed it with an oilfield. The institute would experience some name changes over the next seventy-five years – becoming Southwest Foundation for Research and Education, then Southwest Foundation for Biomedical Research, and finally, in 2011, Texas Biomedical Research Institute.



*Above:
Tom Slick and
Earl Slick*



*Tom Slick addresses board
at annual meeting. His
leadership and vision
advanced the organization
into the future.*



75 Years of Discovery

New Research Brings Hope Of Treatment

“Science gives us a tool of unparalleled effectiveness by which we can improve the physical side of our lives; and since science recognizes no boundaries, the lives of people all over the world,” he told his family as he arranged for some of his oil royalties to insure the new institute’s financial future.

Over the next few years, Tom Slick actively pursued research opportunities for the new institute, and hired its original six scientists, who would later describe their laboratories as “the Wild West,” without air conditioning, and sometimes home to a stray rattlesnake. A man of diverse interests, he also oversaw several ranches, helped develop the Brangus breed of cattle and various new species of grasses, established Slick Airways – the world’s largest freight airline at the time – with his brother Earl, and brother-in-law Lew Moorman, invented the “Lift-Slab” method of construction, and drilled for oil and found it. Expanding his “Science City” dream, he founded the Institute of Inventive Research, and in 1947, Southwest Research Institute, now the third largest applied research institute in the world, located next door to Texas Biomed. He wrote two books about world peace, mounted extraordinary expeditions in pursuit of mysteries, searching for “magical healers” in the Amazon

rainforest, and the “Abominable Snowman” or “yeti” in the Himalayas. In 1958, he founded his last scientific institute, the Mind Science Foundation, to study the mysteries of the human mind; it now focuses mainly on the neurosciences.

Tom Slick died in 1962, when his Beechcraft Bonanza 35 crashed over Montana in stormy weather. He left behind four children – William Lewis Slick, Patty Nixon Slick (now Beem), Thomas Baker Slick, and Charles Urschel Slick, who is currently on the Board of the Texas Biomedical Research Institute. His legacy has grown to include six grandchildren and seven great-grandchildren, and encompasses seventy-five years of remarkable contributions to science that have made this world a better place. Thank you, Tom Slick.

Catherine Nixon Cooke is the author of three biographies: Tom Slick Mystery Hunter, currently in development as a major motion picture, The Thistle and the Rose: Romance, Railroads and Big Oil in Revolutionary Mexico, and Juan O’Gorman: A Confluence of Civilizations. She is currently writing the history of CPS Energy, and the untold story of the power company’s impact on San Antonio, scheduled for publication by Trinity University Press in October.

On December 8, 1941, President Franklin D. Roosevelt declared December 7 as “a date which will live in infamy.” The attack on Pearl Harbor had thrown the country into World War II and young men across America began preparing to leave their loved ones and take up arms.

Thomas Baker Slick, Jr. was only 25 years old, but like other young men at the time, he heeded the call of his country and volunteered for the U.S. Navy. Unlike other young men, Tom had a vision which he needed to execute.

“It has always been my intention to work towards the building of a great center for human progress through scientific research,” writes Tom in his last will and testament. “I would like this effort to be as big as it soundly can, and at the same time to embrace as wide a range of scientific research as is practical. Equally, if not more important than size and scope should be efforts to achieve the highest quality of accomplishment.”

On December 16, 1941, Tom established the Foundation of Applied Research (FAR). Endowed with 1,875 shares of the Slick-Urschel Oil Company, FAR’s mission was to provide fundamental research and advanced education,

covering agricultural research, the natural sciences and medicine. FAR’s name was changed in 1952 to the Southwest Foundation for Research and Education, succeeded by the Southwest Foundation for Biomedical Research in 1984. In 2011, the name was changed to Texas Biomedical Research Institute.

For 75 years, Texas Biomed has fulfilled Tom’s vision of embracing diverse scientific research at the highest level and has made life-saving breakthroughs. Scientific research often begets disappointment and failure, but each learning, whether resulting in success or not, is a win.

Even Tom knew this, writing to a disheartened scientist, “I don’t believe in failure, only outcome. Where there is a disappointment of some sort, I never think it is the end of the story. I believe it’s the beginning of something new, sometimes a great adventure.”

*The following is just a sample of
Texas Biomed’s 75 year adventure...*

Our History

A Timeline of Our Story

1940s

- December 16, 1941, **Tom Slick, Jr.** formed the Foundation of Applied Research at age 25. He sought to create a research organization to meet the challenge of bettering mankind. The Foundation, located on the famed "Essar Ranch" in San Antonio, Texas, was formed with the mission to provide fundamental research and advanced education in agricultural research, the natural sciences, and medicine. The ranch's name "Essar" was chosen as a phonetic symbol of S and R, the first letters of scientific research.



- 1947, **Foundation of Applied Research** opened its first laboratory building on the Cable Ranch property. Initial research focused on agriculture and cattle breeding.



1950s



• **Harold Vagtborg, D.Sc. (Hon), L.L.D.**
FAR First President, 1948-1959



- 1951, **Dr. Nicholas T. Werthessen**, who studied cardiovascular disease and atherosclerosis, joined FAR. He initially used calves as an animal model until baboons were discovered to have fatty deposits in the aorta, similar to humans.



- 1952, The Foundation of Applied Research (FAR) is renamed **Southwest Foundation for Research and Education (SFRE)**.

- 1953, First grants awarded by the **National Institutes of Health (NIH)**.



- 1956, **First baboon colony** established at SFRE from animals acquired from the local zoo.

1960s



• **Harold Vagtborg** – served as Administrative Director, 1961-1970

- 1963, **Hixon Animal Research Laboratories** were completed. SFRE tripled in size with the addition of the Ferdinand D. Herff Memorial Research Laboratory, the Chimpanzee Breeding Building and the Primate Quarantine Building.
- May 1967, The **first shipment of chimpanzees from the Congo** arrived on campus. First assigned name was Harold.
- 1962, **Tom Slick Jr.** died in a plane crash in Dillon, Montana at the age of 46.



- 1963, **Dr. Seymour S. Kalter** joined SFRE to study microbiology and infectious diseases, and developed the baboon as a model to study viruses.



- 1961, Surgeons worked on techniques to **keep organs alive outside the body** before transplantation. Studies conducted included cardiovascular disease, ovarian function, and lipid metabolism in the brain.



• **Elbert DeCoursey, M.D.**
SFRE President, 1959-1961

- 1958, **NIH and Texas Heart Association** provided funds to support the baboon colony to study the effects of heart disease with the baboon animal model. Construction of the baboon cages (aka baboonery) began.



- 1958, **First expedition to Kenya** to acquire animals. Six grown male baboons were shipped to SFRE from Africa.



- 1956, **Betty Slick Moorman**, Tom Slick's sister and Foundation trustee, purchased and restored *The Argyle* as a private social club to support the Foundation's research.

1970s

- 1970, **The Southwest Foundation Forum** was chartered as a women's group to promote the work of the Foundation in the community through education and fundraising programs. In 1977, the **Golden Circle** was created



to increase the philanthropic support of the Foundation by individuals and businesses. The symbol represents the unending search for truth and knowledge, the essence of scientific research.

- 1971, SFRE developed **totally germ-free infant baboons** by isolating them from the outside world. These special baboons were used to study various cancers, specifically leukemia.



- 1971, The Foundation library was rededicated as the **Preston G. Northrup Memorial Library**, in honor of Mr. Northrup's contributions to the library since its inception.



- 1973, **Dr. Henry C. McGill Jr., M.D.**, joined SFRE and became the first Scientific Director in 1979.

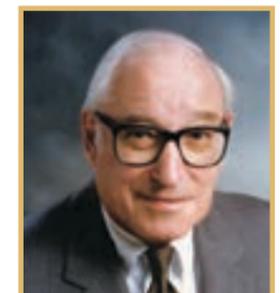
- 1978, **The National Cancer Institute** supported the chimpanzee colony for critical cancer studies. In 1979, the **NIH National Heart, Lung and Blood Institute** awarded SFRE a contract to maintain an NIH chimpanzee colony for hepatitis research.



- 1979, **the tether system** allowed arterial pressure and heart rate to be measured in awake baboons. **Dr. Dee Carey, Terry Hawkins, and Dr. Robert Shade** continued to refine it.



• **Stanley W. Olson, M.D.**
SFRE President, 1970-1972



• **Martin A. Goland**
SFRE President, 1973-1982

1980s

- 1981, **SFRE** was the world's only primate center with cardiac catheterization and angiography equipment. The special x-ray machine enabled scientists to examine the heart and its arteries.
- 1981, **The Southwest Foundation Forum** funded researchers to develop a model to study infant respiratory distress syndrome. Researchers studied the use of the high frequency ventilator to provide premature baboons with lower airway pressure.
- 1983, **The world's first nonhuman primate was born on July 25** from an in vitro fertilized embryo and was named "E.T." (Embryo Transfer).



- 1983, **Dr. Jorg Eichberg and Dr. S.S. Kalter** began studying the AIDS virus using baboons and chimpanzees as a nonhuman primate model.
- 1984, **Dr. Jean MacCluer and Dr. Bennett Dyke** developed computerized statistical methods for analyzing populations genetic data.



- 1984, Southwest Foundation for Research and Education was renamed **Southwest Foundation for Biomedical Research**.
- 1986, "**Florentina**", a 10-week premature chimpanzee became the first chimpanzee placed on a high frequency ventilator.

1990s

- 1990, **Genetically engineered AIDS vaccine** protected two chimpanzees at the Foundation from infection.
- 1991, **The Mexican American Program Project** funded by NIH to support the San Antonio Family Heart study. Dr. Jean MacCluer led a team of 20 researchers to identify specific genes that influence susceptibility to coronary heart disease in Mexican Americans.
- 1991, **SOLAR**, a genetic analysis software package developed by SFBR scientists and now used by more than 5,000 researchers worldwide, was released.
- 1996, **Dr. Jean Patterson** joined SFBR as the chair of the Virology and Immunology department. She was instrumental in opening and designing the maximum biocontainment laboratory to study threats in bioterrorism. She began the first studies using select agents including anthrax and tularemia.



• **Duncan G. Wimpress, Ph.D.**
SFRE President,
1982-1992

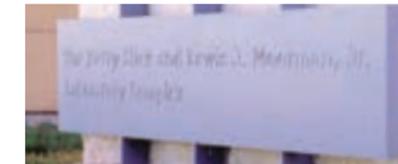


2000s

- 2000, **The Biosafety Level 4 Lab** became fully operational. SFBR is the only institution in the country to house both a BSL-4 lab and a national primate research center.



• **Frank F. Letford, Jr., M.D.**
SFBR President,
1992-2005



- 1997, The Foundation broke ground on the 34,000 sq. ft. **Betty Slick and Lewis J. Moorman, Jr. Laboratory complex**.
- 1999, The NIH National Center for Research Resources announced the establishment of the eighth **Regional Primate Research Center (SNPRC)** in the country at SFBR.



- 1997, **The Department of Genetics** began to identify genes influencing food intake and body fat endocrine function. Research on these genes helped aid in the identification of individuals at risk of developing obesity and, potentially, in the development of treatments to prevent obesity and related conditions.



• **Anthony J. Infante, M.D., Ph.D.**
SFBR President,
2005-2006



• **John C. Kerr, J.D.**
SFBR President,
2006-2008

- 2007, **Drs. Harald Göring, Shelley Cole, David Rainwater, Anthony Comuzzie, Jean MacCluer, et al.** discovered the VNN1 gene that plays a major role in the regulation of HDL (good) cholesterol levels and may play a part in heart disease prevention.
- 2008, The Department of Organic Chemistry becomes **Evestra**, a private pharmaceutical company to produce new contraceptives and treatments for breast and prostate cancer.
- 2009, **Dr. Laura Cox, et al.** identified a variant in a gene that regulates levels of "good" cholesterol using the SNPRC's pedigreed baboon colony.



- 2003, **The AT&T Genomics Computing Center** opened with 3,000 processors, improving the ability of scientists to identify genes influencing common diseases.

- 2004, **Dr. Robert Lanford and Dr. Krishna Murthy** continued their work to develop a Hepatitis C virus vaccine using chimpanzees. Dr. Lanford discovered the first evidence that a vaccine against all strains of the virus could be possible.



2010 to today



- 2010, **Dr. Andrew Hayhurst** studies the use of llama antibodies to quickly detect microbes and toxins that could be used in bioterrorism attacks. In 2014, his lab identified antibodies that recognized a small conserved region of protein in Marburg virus with a very similar architecture to Ebola virus.
- 2011, Southwest Foundation for Biomedical Research was renamed **Texas Biomedical Research Institute (Texas Biomed)**.

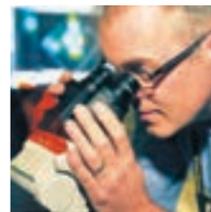
- 2012, **Dr. Tim Anderson and Dr. Ian Cheeseman** were involved in two studies identifying a major region of the malaria parasite genome associated with artemisinin resistance.



- 2012, **Dr. Robert Lanford** and his team tested a human monoclonal antibody targeting the Hepatitis C virus and found that it protected chimpanzees from HCV infection in a dose-dependent manner. Dr. Lanford has been involved in the testing of new antiviral therapies for the treatment of chronic hepatitis infections. Today, two antiviral cocktails are FDA approved and others are near approval that can cure HCV with 12 weeks of daily oral medications.



- 2013, In separate studies, scientists **Dr. Robert Davey, Dr. Jean Patterson and Dr. Ricardo Carrion, Jr.** reported findings of two drugs that protected mice against anthrax, while another drug used to treat malaria protected mice against Ebola.



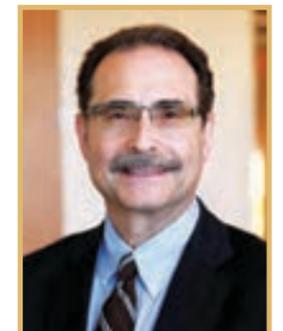
- 2014, **The Earl Slick Building**, named in honor of Tom Slick's brother for his role in the institute's development, opened with 70,000 sq. ft. of laboratory and office space.
- 2015, **Dr. Robert Davey** publishes findings in the journal "Science" on a small molecule inhibiting Ebola virus infection in vitro.
- 2016, **NIH** awards Texas Biomed \$23 million program project to work on AIDS vaccine development led by Dr. Ruth Ruprecht.



• **Kenneth P. Trevett, J.D.**
SFBR/Texas Biomed President,
2008-2014



• **Robert W. Gracy Ph.D.**
Texas Biomed President,
2014-2017



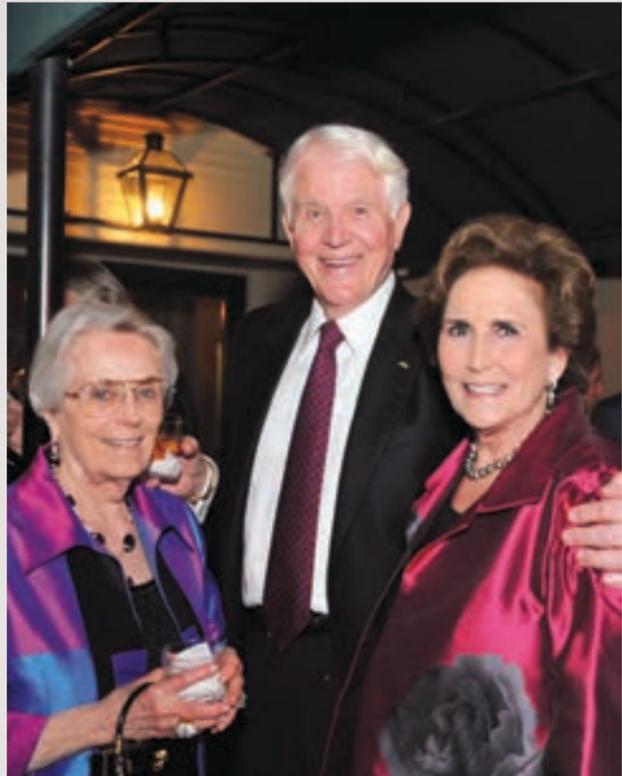
• **Dr. Larry S. Schlesinger**
Texas Biomed President,
2017

Texas Biomed
75 YEARS
The Argyle
60 YEARS

A COMMON BOND ♦ A SHARED VISION

*Honoring Donors and Members
of the Texas Biomedical
Research Institute and The Argyle*

*On a beautiful November evening in 2016, more than
500 donors gathered to celebrate two anniversaries.*



*“Every person here shares the honor of what we have together
created – this shared vision and shared purpose – the vision of
creating a GREAT CENTER FOR HUMAN PROGRESS.”*

– Dr. James (Jamo) Rubin



Texas Biomed Contributions

Champions of Discovery

Every day, our team at Texas Biomed looks for solutions to health threats that exist today and dangers we have yet to see. Each and every one of our colleagues labors in the present with a hopeful eye on the future. Our work is not possible without people who understand that a commitment to scientific research happening right now will produce rewards for generations to come. Albert Camus wrote, “Real generosity toward the future lies in giving all to the present.”

Our team gives its all every day to unlock the mysteries of chronic and infectious diseases. Each of you is part of this effort through your support and dedication to our mission. Investing in biomedical research now is truly a generous gift to the future.

Texas Biomed was founded 75 years ago on the foresight and philanthropic support of people who wanted to be a part of building a brighter, healthier future, and that legacy remains strong. Donations fund the hope necessary to keep searching for answers to our world’s most vexing health threats.

And, every donor to Texas Biomed – like our founder, Tom Slick – envisions a healthier future and aims to enhance lives through discovery.

It is an honor to acknowledge the exceptional support of the following donors, whose significant financial contributions to Texas Biomed enabled our scientists to tackle truly life-changing research:

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2016 TEXAS BIOMEDICAL FORUM



Texas Biomed is a true treasure in our community, and The Forum takes time to educate our community about the importance of the scientific work being done, as well as contribute significant funding for pilot studies.

Our 23rd annual Science Education Awards winners included two first place teachers – Rachael Guillen from Young Women's Leadership Academy for "Using DNA Technology to Research Genealogy" and Jose Ayala from Brooks Academy of Science and Engineering for "Hunting for New Antibiotics in the Wild"; second place went to Jennifer Rice from John Marshall High School for "Forensic Anthropology: Identifying Skeletal Remains" and third place went to Sarah Thompson from Earl Warren High School for "A Look Inside: Using Preserved Specimens to Further Aquatic Learning." These awards are generously supported by Mrs. Valerie Guenther and the V.H. McNutt Memorial Foundation, along with the Forum. Texas Biomed provided scientific support in evaluating award submissions. In addition to the awards, seven area high schools toured Texas Biomed this year from all over San Antonio – Warren High School, San Antonio Christian School, Southside High School, St. Anthony Catholic High School, Poteet High School, Cornerstone Christian School and Jay Science and Engineering Academy.

The Forum enjoyed several special events this year – the annual Gala Kickoff Luncheon at The Argyle, Past Presidents Luncheon that included our Past Gala Chairs and Co-Chairs this year at the home of Suzanne Dabbous; Board Trustees Christmas Cocktail Party at the home of Karen Lee Zachry; Spring Jewelry Show Luncheon at Saks Fifth Avenue; first ever Neiman Marcus – Jefferson Bank Stiletto Strut honoring our annual Gala Fashion Show held at The Argyle; annual Board Trustee/Past Presidents Luncheon at the end of the year and last, but certainly not least, our much-anticipated Forum Gala 2017: In Bloom, which took place on the first Saturday in May as has been our tradition. It was an incredible success!

Texas Biomed is a true treasure in our community, and the Forum takes time to educate our community about the importance of the scientific work being done, as well as contribute significant funding for pilot studies. In the last 17

The purpose of the Texas Biomedical Forum, known simply as the 'Forum,' is to support Texas Biomed through community relations, volunteer services and fundraising. Formed in 1970-71, Dottie Dreeben Block served as the organization's first President. The Forum is its own non-profit organization comprised of women ages 21 years and older. Our three mission components are achieved in the following ways...

Community relations of the Forum involve hosting two lecture luncheons annually, one roundtable discussion, several special events a year, monthly student tours for high school students, annual science education awards for high school teachers, as well as publishing our Forum in Focus newsletter three times per year. Volunteer services are accomplished primarily by our Board Trustees, Advisors and Honorary Advisors. Fundraising is a Forum specialty. Membership dues fund most of our Forum work, including administrative needs and, importantly, our science education awards program. The Forum Gala specifically fundraises for pilot study grants done by Texas Biomed research scientists to accomplish investigational, small scale studies, which can lead to competitive, well-funded grants by national agencies.

We had a truly amazing 2016-17 Forum year! We had the pleasure of welcoming the following Texas Biomed scientists to our Roundtable Discussions in October 2016: Dr. Manu Anantpadma, Dr. Christopher Chen, Dr. Shelley Cole, Dr. Marcel Daadi, Dr. Luis Giavedoni, Dr. Andrew Hayhurst, Dr. Michael Olivier, Dr. Michael Proffitt, Dr. Kimberly Reeves and Dr. Ruth Ruprecht. The Fall Lecture Luncheon speaker in November 2016 was Dr. Suzanne Dabbous with Avestée Women's Imaging Center of Alamo Heights speaking on, "The Current State of Screening Mammography." Dr. Dabbous is a Past President and Past Gala Chair of the Forum. Our Spring Lecture Luncheon in March 2017 featured Dr. Ricardo Carrion from Texas Biomed, addressing the "Development of Vaccines and Therapies to Ebolavirus Disease." We continue to be grateful for everyone's participation and presence at these events.



Pictured above from left to right: Amanda Besner, Forum President; Sara Walker, Gala Chair; Dr. Jamo Rubin, Texas Biomed Chairman; Judy Lutz, Gala Co-Chair; Elizabeth Cox, Gala Assistant.

The Forum awarded \$300,000 in grants to scientists at Texas Biomedical Research Institute to assist in developing preliminary data that will enable these scientists to secure future funding for novel projects. The following projects were funded in 2016.

Collaborative Grant: Towards a cure for AIDS in the SIV/rhesus macaque model

Dr. Luis Giavedoni, Texas Biomed and Dr. Zhao Lai, UTHealth San Antonio

Liver and serum metabolomics biomarkers for atherosclerosis

Dr. B. Misra Biswapriya

Cellular long non-coding RNAs in HIV replication

Dr. Smita Kulkarni

Assessing the impact of consumption of a sugar-sweetened drink on physical activity, body fat, and metabolism in the baboon

Dr. Anthony Comuzzie

Identification of microRNA biomarkers associated with extent of atherosclerosis in Hispanic obese adolescents

Dr. Genesis Karere

Novel antiviral based on crosslinking Marburgvirus nucleoprotein

Dr. Andrew Hayhurst

Development of Novel Arenavirus Inhibitors into drug like substances

Dr. Manu Anantpadma

years, the Forum has awarded about \$3 million to fund these studies. As a result, scientists have been awarded nearly \$60 million of additional funds to continue their work!

We know the Forum would not be where it is without the leadership that came before us. There have been 42 Past Presidents, and we are grateful for their continued support and participation in our hard-working organization. It has been my honor to serve as this year's President and I look forward for the years to come for the Texas Biomedical Forum, an organization dear to my heart.

With gratitude and in service,

Daniela Serna
2016 Forum President

2016 FOUNDER'S COUNCIL



Founder's Council gives members the opportunity to meet and learn from the scientists.

The Founder's Council is a dynamic group of individuals between the ages of 25 and 46 with the goal of building awareness among our city's young leaders and creating long-term philanthropic supporters for Texas Biomed.

The Founder's Council was established in 1988 and now boasts more than 330 members from across San Antonio. Members' annual donations help fund competitive grants to Texas Biomed scientists, and their outreach in the community is of great value as we seek to encourage more young professionals to become advocates for scientific research.

2016 was a signature year as we celebrated the 75th anniversary of Texas Biomed and the 60th anniversary of The Argyle. With strong membership intact, we focused on educating our members about the opportunity to increase their participation level to the Adventurer Level of \$500 and the Explorer Level of \$1,000. We believe this is the greatest way to increase our year-end grant levels and to build long-term supporters of Texas Biomed.

In May we organized a full bus of prospects for the Adventurer and Explorer levels and took a tour of Texas Biomed followed by an intimate dinner and presentation on-site by our scientists at Texas Biomed. It was a fantastic evening where many saw the campus and research facilities for the first time. We believe this made a lasting impact on all guests and drove new members to Founder's Council.

To celebrate the anniversary year we hosted our signature event for our higher donors on the lawn of The Argyle in October. The evening boasted a wonderful meal and band and the atmosphere was perfect to celebrate and thank our largest Corporate, Explorer and Adventurer donors.

We continued to deliver three excellent Lecture Luncheons throughout the year at The Argyle where our scientists shared their cutting edge research with our members and many new prospects. In March, members enjoyed the premiere event, Dining and Discourse, where scientists from across all areas of research joined a table of guests in an intimate setting over dinner allowing for conversations about their area of expertise.

We concluded our 2016 at the Tobin Estate for our annual holiday party and were honored to present the scientists with their equipment grant awards for the year totaling nearly \$80,000.

Founder's Council exists to allow members the opportunity to meet and learn from the scientists, share what they've learned in the community and then support these scientific discoveries financially. We believe 2016 played a vital role in helping Texas Biomed make a global impact, and we are proud to carry on this great tradition.

Sincerely yours,

Jeff P. Bailey
2016 President, Founder's Council

2016 THE FOUNDER'S COUNCIL

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THE ARGYLE

This year, The Argyle celebrated its 60th anniversary as the establishment of an exceptional club whose members contribute to the mission of Texas Biomed, which is to unravel the mysteries of chronic and infectious diseases through innovative thinking, creative problem solving and cutting-edge technologies.

In 1954, Tom Slick Jr.'s sister, Betty Slick Moorman devised the idea to turn a dilapidated horse ranch into a place that could serve both the community and her brother's vision. With the support and help of her husband Lew Moorman and many others in the community, The Argyle was restored and opened in 1956. Today, The Argyle serves as a bond between scientists and the men and women who have dedicated personal resources for the advancement of science.

For 60 years, this historic Southern mansion and unique private club has supported the life-saving efforts of Texas Biomedical Research Institute.

In partnership with Texas Biomed, The Argyle hosted a grand anniversary party for its members on November 17, 2016, that again served as an opportunity to educate the community about the work of Texas Biomed and thank all those who have supported both organizations over the years. The celebration underscored that The Argyle is still a unique and important symbol of the community's rich past and of the progress that people can make together toward a better tomorrow for mankind.

The Argyle's commitment to excellence continues today. Members welcomed many changes within the facility in 2016, several of which were behind the scenes, including updates to the kitchen floor, a new dining reservation system and new pager system for the servers. Several new beverage programs were introduced in 2016 to include a

new coffee and tea program for members. Coperaco was chosen to design our new coffee program. It is a boutique company whose mission is to upgrade coffee into a true culinary product. Tea Forté is our new tea company and is considered to be among the top 1% of all tea companies because they only use the top two leaves of the Camellia Sinensis, the tea plant. The Argyle has also partnered with the Amici Winery in Napa and developed our own label of white and red blend wines called 934 Patterson Ave.

The Argyle continued to host many splendid occasions such as weddings and family events. In addition to the financial support members provide Texas Biomed, The Argyle hosted community education events, including its most popular initiative called "Fireside Chats."

Last year's "Fireside Chats" included Dr. Marcel Daadi and Dr. Roy Choudary providing an update on stem cell treatment studies for neurological disorders and Dr. Ruth

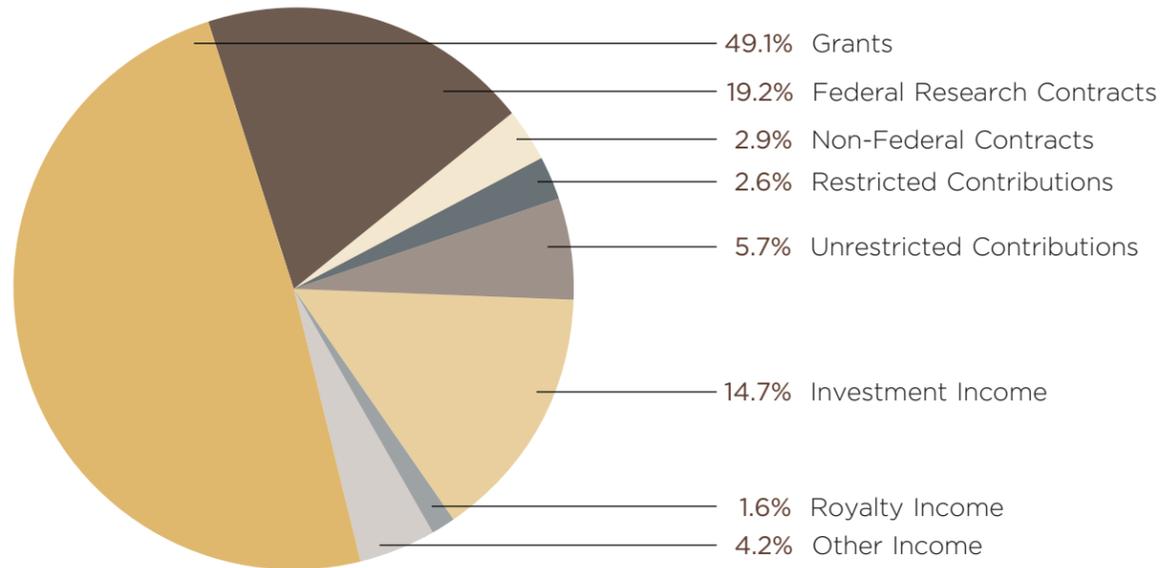
Ruprecht discussing an innovative approach to vaccine development in the fight against HIV in early 2016. In June, as news of Zika virus gained international attention and the virus began to spread to the U.S., Dr. Jean Patterson discussed studies underway at Texas Biomed to understand the virus and its sometimes devastating consequences on newborns. In October, Dr. Robert Lanford updated our members on studies underway at the Southwest National Primate Research Center into Hepatitis C, liver disease, pertussis, and other research initiatives at the Center.

"Fireside Chats" allow members and their guests to meet with Texas Biomed scientists in a social setting to enjoy a conversational exchange of ideas, including the opportunity for questions and answers regarding the scientists' research. It is a true bridge builder between the scientists and supporters.



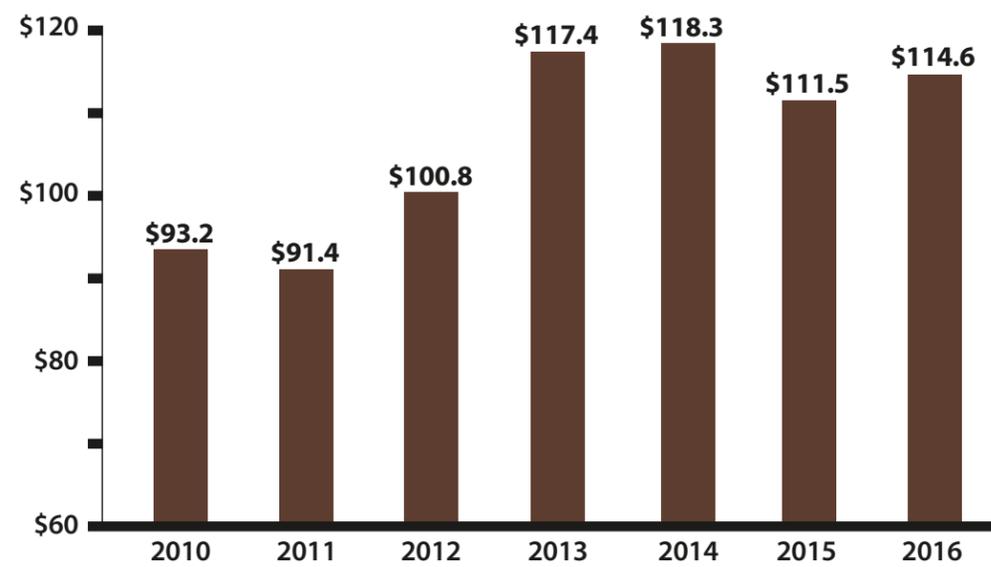
FINANCIALS

2016 Revenue*



* Based on 2016 Audited Financials

2016 Value of Endowment In Millions of Dollars



Gabriella Worwa, D.V.M., Ph.D., works in the biosafety level 4 laboratory, which is designed for maximum safety allowing for research of the world's deadliest infections. In June 2017, Texas Biomedical Research Institute's Board of Trustees approved moving forward with the design and construction of a new biosafety level 4 facility. To learn more about this late-breaking news, please visit www.txbiomed.org.

GRANTS AND CONTRACTS

Awarded in 2016

RESEARCH

COMMERCIAL RESEARCH GRANTS

Total from Commercial Research \$1,350,093

FEDERAL RESEARCH GRANTS

SPONSOR	TITLE	PRINCIPAL INVESTIGATOR	LENGTH	NEW AWARD TOTAL
NIH	Southwest National Primate Research Center	Dr. Larry Schlesinger	5 years	\$40,136,909
NIH	Defense-in-depth Against Mucosal HIV Clade C Invasion	Dr. Ruth Ruprecht	5 years	\$23,153,411
NIH/WUSL	Structural and Functional Characterization of the Ebola Virus Replication Complex	Dr. Robert Davey	5 years	\$3,567,190
NIH/BATTELLE	Evaluation of Filovirus Vaccines in a General Use Prophylaxis (GUP) Immunogenicity and Ebolavirus Challenge Studies to Identify Potential Correlates of Protection	Dr. Ricardo Carrion	2 years	\$2,881,033
NIH	Research to Improve and Standardize Marmoset Nutrition and Dietary Husbandry	Dr. Suzette Tardif	4 years	\$2,796,902
BARDA/IITRI	Efficacy Study of mAb Therapeutics Against Lethal Challenge of Nonhuman Primates with EBOV	Dr. Ricardo Carrion	1 year	\$2,002,125
DOD	In vitro and in vivo Characterization of Filoviruses through the Exploration of Various Vaccine Candidates	Dr. Anthony Griffiths	1 year	\$1,568,646
DTRA/SwRI	Cepharanthine/Chloroquine Combination for Prophylaxis or Treatment of Ebola	Dr. Robert Davey	1 year	\$1,352,021
NIH/BAV NOR	Development of Technologies that Accelerate the Immune Response to Biodefense Vaccines (Part 14) (Jean Patterson, Co-PI)	Dr. Ricardo Carrion	1 year	\$1,188,232
NIH/BATTELLE	Efficacy Testing of Filovirus Vaccines in Nonhuman Primates (Ricardo Carrion, Jr., Anthony Griffiths - Co-PI)	Dr. Jean Patterson	1 year	\$1,153,551
BARDA/IITRI	Efficacy Studies of a Monoclonal Antibody Cocktail Against Lethal Challenges of Nonhuman Primates with EBOV	Dr. Ricardo Carrion	1 year	\$905,526
NIH	Development of Technologies that Accelerate the Immune Response to Biodefense Vaccines (Part 13) (Jean Patterson, Co-PI)	Dr. Ricardo Carrion	1 year	\$689,452
NIH/JANSSEN	Advanced Development of a Multivalent Filovirus (Ebola/Marburg) Hemorrhagic Fever Vaccine (SOW 24 v2)	Dr. Ricardo Carrion	1 year	\$638,145
NIH	Identification of Molecular Mechanisms Underlying Early Atherosclerosis	Dr. Genesio Karere	5 years	\$630,460
NIH/JANSSEN	Advanced Development of a Multivalent Filovirus (Ebola/Marburg) Hemorrhagic Fever Vaccine (SOW 23 v2)	Dr. Ricardo Carrion	1 year	\$537,775
NIH	Functional Impact of Long Non-coding RNA Expression on HIV Control	Dr. Smita Kulkarni	2 years	\$420,679
NIH/Collab.	Repurposing pyronaridine as a treatment for the Ebola virus	Dr. Robert Davey	2 years	\$334,533
NIH/WAKE	Prenatal Events, Postnatal Consequences	Dr. Laura Cox	1 year	\$267,603
FDA	Bordetella-Free Weanling Baboons	Dr. Karen Rice	1 year	\$256,620
DOD	Optimizing the Adaptation of SHIV-E: Re-isolation of an R5-tropic Pathogenic Virus	Dr. Ruth Ruprecht	1 year	\$125,000
NIAID/TSRI	Cooperative Center for the study of HCV antibody responses and vaccine	Dr. Robert Lanford	1 year	\$124,709
ARMY/UTHSCSA	CAP: Genetic and Epigenetic Alterations as Biomarkers for PTSD Diagnosis and Prognosis	Dr. Melanie Carless	2 years	\$119,862
NIH/UTRGV	2/2 An Integrative Genetic Investigation of Schizophrenia	Dr. Eugene Drigalenko	1 year	\$59,404
DARPA/Harvard	Species Inspired Research for Innovative Treatments (SPIRIT)	Dr. Robert Lanford	2 years	\$36,042

Total from Federal Research \$84,945,831

PHILANTHROPIC RESEARCH GRANTS

SPONSOR	TITLE	PRINCIPAL INVESTIGATOR	LENGTH	NEW AWARD TOTAL
Various	Community Awareness Campaign	Various investigators	1 year	\$1,149,135
Texas Biomedical Forum	Towards a cure for AIDS in the SIV/rhesus macaque model	Dr. Luis D. Giavedoni and Dr. Zhao Lai	1 year	\$310,000
	Liver and serum metabolomics biomarkers for atherosclerosis	Dr. B. Misra Biswapriya		
	Cellular long non-coding RNAs in HIV replication	Dr. Smita Kulkarni		
	Assessing the impact of consumption of a sugar-sweetened drink on physical activity, body fat, and metabolism in the baboon	Dr. Anthony Comuzzie		
	Identification of microRNA biomarkers associated with extent of atherosclerosis in Hispanic obese adolescents	Dr. Genesio Karere		
	Novel antiviral based on crosslinking Marburgvirus nucleoprotein	Dr. Andrew Hayhurst		
	Development of Novel Arenavirus Inhibitors into drug like substances	Dr. Manu Anantpadma		
	Microbiome Nutrition and Obesity Research Study	Dr. Michael Olivier		
Texas Biomedical Founder's Council	15 grants for laboratory equipment	Various	1 year	\$80,048
MARMION	J.T. Marmion MS Pilot Studies	Dr. Marcel Daadi	1 year	\$238,395
COWLES	Assessing MicroRNA Function for Therapeutic Advancement in Bipolar Disorder	Dr. Ashish Kumar	1 year	\$113,521
KLEBERG/UTEP	Novel Vaccine for Chagas Disease: Efficacy Testing in Baboons	Dr. Karen Rice	1 year	\$108,546
VOELCKER/CHOSA	The Role of Follistatin Like 1 Protein in Coronary Artery Aneurysms of Kawasaki disease	Dr. Jean Patterson	1 year	\$95,301
William and Ella Owens Medical Research Foundation	Derivation of muscle precursors from human pluripotent stem cells to transplant in a dog model of Duchenne muscular dystrophy	Dr. Tiziano Barberi	1 year	\$90,000
William and Ella Owens Medical Research Foundation	Stem cell treatment for diabetes	Dr. Marcel Daadi	1 year	\$90,000
William and Ella Owens Medical Research Foundation	Improving vaccine effectiveness: the use of combined cytokines to enhance immune response to vaccines	Dr. Vida Hodara	1 year	\$57,884
COWLES	Determining the Effects of Amino Acid Substitution in the Signal Peptide of Marburg Virus Glycoprotein on biogenesis and Trafficking of the Glycoprotein	Dr. Kendra Alfson	1 year	\$55,645
TOPS	TOPS Nutrition and Obesity Research Center	Dr. Michael Olivier	1 year	\$50,000
William and Ella Owens Medical Research Foundation	Characterization of Ebola virus defective viral genomes and their impact on the innate immune response	Dr. Beata Boczkowska	1 year	\$46,887
CRUMP	Identification of novel mediators of gene silencing in lung cancer	Dr. Hector Guillen	1 year	\$35,000
SAAF	Identifying causes of increased fracture risk in individuals with diabetes	Dr. Ellen Quillen	1 year	\$33,700

Total from Philanthropic Research \$2,269,291

UNIVERSITY RESEARCH GRANTS

SPONSOR	TITLE	PRINCIPAL INVESTIGATOR	LENGTH	NEW AWARD TOTAL
UTHSCSA	Anticonvulsive Effect of VNS in the Epileptic Baboon	Dr. Karen Rice	1 year	\$53,848

Total from University Research \$53,848

TOTAL FROM RESEARCH \$88,619,063

CAPITAL

FEDERAL

SPONSOR	TITLE	PRINCIPAL INVESTIGATOR	LENGTH	NEW AWARD TOTAL
NIH	Southwest National Primate Research Center-Supplement	Dr. Robert Lanford	1 year	\$401,280

Total from Federal Capital \$401,280

PHILANTHROPIC

SPONSOR	TITLE	PRINCIPAL INVESTIGATOR	LENGTH	NEW AWARD TOTAL
McNitt	V. H. McNitt Memorial Foundation Gang Cages Donation	Matthew Majors	1 year	\$25,000

Total from Philanthropic Capital \$25,000

TOTAL FROM CAPITAL \$426,280

GRAND TOTAL OF NEW GRANTS AND CONTRACTS AWARDED \$89,045,343



TEXAS BIOMEDICAL
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