

**SFBR**

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# PROGRESS

A Publication of the Southwest Foundation for Biomedical Research

## Fetal Programming

*How does our time in the womb affect our lifetime health?*

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*Collaboration yields hope in fighting cancer*

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# President's Column

**Dr. Frank F. Ledford, Jr.**  
*President*



Anyone who has been to our campus in recent months has seen that the Southwest Foundation for Biomedical Research is abuzz with activity. Most visible in that regard are the multiple construction projects to renovate our laboratories and animal care facilities.

One highly anticipated construction project, featured in our debut issue of *Progress*, is just reaching completion. The new SBC Genomics Computing Center is gearing up to open its doors, offering a new home to our Computer Ranch.

Our sincere thanks go to the SBC Foundation for making this facility possible. With room to grow our Computer Ranch from some 200 to 1,000 or even 1,500 dual-processor computers, all working in tandem on statistical analyses of genomic data, our scientists expect to cut two days worth of analyses down to just a few minutes. This should greatly increase the rate of scientific discovery related to the genetics of disease.

Of the nearly 200 ongoing research projects at SFBR, one that will benefit from this enhanced computing capability is the San Antonio Family Heart Study. As you will read in this newsletter, Dr. Jean MacCluer and fellow researchers here and at The University of Texas Health Science Center at San Antonio have made great strides in their effort to understand the genetics of heart disease, diabetes and obesity in the Mexican American population.

Another compelling story is our work with Dr. Peter Nathanielsz of New York University, who is exploring the impact of fetal development on our lifetime health.

While these research projects serve as excellent examples of our collaboration with major research centers across the country, another highlights the benefits of teamwork among our own scientists. Dr. Susan Mooberry in our Department of Physiology and Medicine tested a series of compounds developed by Dr. Pemmaraju N. Rao, chair of Organic Chemistry, and demonstrated their promise in fighting cancer. This is really exciting news.

Finally, this issue of *Progress* pays tribute to two outstanding men who have dedicated many years to the betterment of our organization, one as a department chair and one as a long-time board member. I thank Dr. Thomas Butler, recently retired as chair of the Department of Laboratory Animal Medicine, and Tom Frost, community servant and trustee extraordinaire, for their willingness to go "In the Spotlight."

I hope you, our friends and supporters, enjoy this opportunity to learn more about the life-saving research being conducted at SFBR. Through your contributions, you help make all of this exciting work possible.

*Remembering a valued friend and employee:*

## Albert 'Aboo' Steves IV

On February 10, 2003, the Southwest Foundation lost a long-time friend and employee when Albert "Aboo" Steves IV succumbed to kidney failure. He was 67.

Aboo, as he was affectionately known, came to the Foundation in 1988 after retiring as president and CEO of his family business, Ed Steves and Sons, a lumber company founded by his great-great-grandfather in 1866.

At SFBR, Aboo initially served as director of corporate and planned giving, then as director of special projects under the Office of the President. "Aboo was a representative of the Foundation for many years and developed many strong friendships in the community that benefited our organization's research. In doing so, he benefited all of humanity," said SFBR President Dr. Frank Ledford.

He added, "Aboo was a proponent of goodwill throughout our community for many years, and he will be sorely missed by all who knew him."

For Aboo, that goodness extended first to his family and then to the community at large. He was a devoted husband to Martha Monier Steves, his wife of 39 years; a loving father to Albert Steves V of San Antonio, Kurt Monier Steves of Dallas, and daughter Frances Steves Calgaard of San Antonio; and a proud grandfather of three.

Over the years, he contributed his time and leadership to numerous community organizations, including the Texas Cavaliers, the Merry Knights of King William, the San Antonio German Club and the Conopus Club.

In the 1970s, he served as president of the YMCA of San Antonio and as a board member of the YMCA of the Rockies and the National YMCA. Throughout his life, he was an active and committed member of St. Mark's Episcopal Church in San Antonio, where he served for a time as senior warden. He also organized fund-raising efforts for the church and was the chairman of the Department of Finance for the Episcopal Diocese of West Texas.

Perhaps most missed by friends and family will be Aboo's ready smile, his attentive ear, his concern for others and his willingness to help a friend in need.

In remembrance of his valued service to the Southwest Foundation, an endowment has been created in his name, funded by the many generous memorial donations in his honor. For more information about the Albert "Aboo" Steves IV Endowment, contact SFBR's Office of Development at (210) 258-9870.



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## PROGRESS

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*Fetal programming:*

## How does our time in the womb affect our lifetime health?



our predisposition to or natural protection from heart disease, cancer, diabetes, infertility, obesity, and a number of other health concerns may have as much to do with the time before you were born as any other factor. While genes and lifestyle both play a vital role in your health, how your body deals with those factors can be greatly influenced by conditions you faced in the womb.

That is what a growing body of research shows, including the work of Dr. Peter Nathanielsz, an obstetrician and scientist recognized worldwide as a leading expert in the area of fetal programming, or fetal origins of adult disease.

Director of the Women's Health Research Center at New York University and an adjunct scientist at the Southwest Foundation for Biomedical Research, Dr. Nathanielsz explains it this way: "We pass more biological milestones before we are born than we'll ever pass again as we grow from that first cell to 100 billion cells (as a newborn). During that process, if we don't lay down enough cells in our kidneys, if we don't lay down the right cells in our brain, or if we don't lay down the right cells in our pancreas so that they can interact with each other in the proper way, then those organs are not going to function properly later in life."

The result can be increased risk for any number of diseases and health problems, and in women, those health problems can be passed on to future generations. On the other hand, a healthy pregnancy that fosters proper fetal development can go a long way in protecting that child from health problems later on in life. "Parents can even benefit future generations, since healthy daughters have healthier children when they themselves become pregnant," says Dr. Nathanielsz.

### The birth of a new field of research

This burgeoning field of scientific research got its start with Dr. David Barker of England's University of Southampton. In 1984, while editing an atlas of England and Wales published by the Medical Research Council, he noticed that regions with high neonatal mortality rates in the early 1900s were also affected by high rates of heart disease. His curiosity as to why led him on a quest that uncovered the birth records – including the recorded birth weight – of every baby born in Hertfordshire from 1911 to 1945. A resulting study that involved 13,249 men born in the region revealed that a man who weighed less than 5.5 pounds at birth is 50 percent more likely to die of heart disease than men who

**We pass more biological milestones before we are born than we'll ever pass again as we grow from that first cell to 100 billion cells (as a newborn).**

– **Dr. Peter Nathanielsz**  
*Obstetrician and scientist recognized worldwide as a leading expert in the area of fetal programming, or fetal origins of adult disease.*

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had higher birth weights. He also showed those low birth weights to have links to obesity and type 2 diabetes.

## How fetal programming works

The reasoning is not just that being small makes one more susceptible to disease, but that conditions that lead to stunted growth in the womb cause other problems in physiological development that lead to health problems later in life. In the case of heart disease, several factors may be at play. If the mother, and therefore the fetus, does not have enough protein, an enzyme in the placenta loses its ability to protect the fetus from dangerous hormones such as cortisol, which can give the fetus irreversibly high blood pressure.

Dr. Nathanielsz explains that an undernourished fetus is also likely to direct its limited resources towards the development of more critical organs like the brain at the detriment of the kidneys, liver, and pancreas. Since these organs regulate blood pressure, cholesterol, and insulin levels, respectively, their underdevelopment can greatly impact one's susceptibility to heart disease and diabetes in adult life. In fact, studies have shown that babies born with disproportionately small abdomens and large heads – caused by the scenario described above – are more likely to suffer from high cholesterol in their adult years.

Experiences in the womb can even affect which of our genes get turned on or off. So, for instance, a fetus that is undernourished during a critical part of the pregnancy might activate a gene for a “thrifty metabolism,” causing the person even as an adult to burn less caloric energy and quickly convert calories to fat.

Other adult traits shown to be affected by stress, nutrition, and the numerous other factors impacting prenatal development include eating patterns, emotional resilience, intelligence, susceptibility to cancer, fertility, resistance to infection, and how quickly a person ages, to name a few.

And those traits can be impacted in different ways depending on what is occurring within the womb at different stages of a pregnancy. This was made particularly evident through epidemiological studies of people in Holland who endured what is known as the Dutch Hunger Winter. From September 1944 until May 1945, a Nazi blockade of western Holland and strict food rationing caused the people's average daily caloric intake to drop from over 1,500 calories per day to 750 and eventually about 450 calories per day. After the Allies liberated Holland, the average daily caloric intake jumped up to 2,000 calories. Years later, striking differences were apparent in people who



**Drs. Peter Nathanielsz and Natalia Schlabritz-Lutsch study blood vessels from a placenta to learn how they are affected by various prenatal conditions.**

had been in the womb at different times during that forced starvation. For one, those who had been conceived prior to that winter and were undernourished only during the second half of their fetal life tended to remain lean in later life. On the other hand, those who were conceived during that harsh period and born after the liberation, who suffered undernourishment in the first half of their fetal life and adequate nutrition during the second half, had higher birth weights and a tendency to be overweight or obese in their adult years.

One theory suggests that the centers of the brain responsible for appetite were affected differently. Nathanielsz' research with animals also reveals a connection to varying growth of the placenta. When undernourished early on, the fetus grows a larger placenta, essentially “widening the highway” by which nutrients are brought in. When nourishment increases later during the fetal development, the nutrients “come pouring in” and increase the number of fat cells “laid down” in a baby that has prepared itself to live on a leaner diet.

## Quest for understanding leads scientist to SFBR

Dr. Nathanielsz has spent the past 30 years of his career investigating the links between fetal and adult health. In the process, he has authored or coauthored nearly 240 articles that have been published in scientific literature, lectured at some 175 universities around the world, and spoken at nearly 120 international meetings and workshops. In 1999, he released his second book, *Life in the Womb: The Origin of Health and Disease*. This book for the general reader on the programming of lifetime health was republished in 2001 in a version titled *The Prenatal Prescription*. It already has been translated in six different languages.

A large part of Dr. Nathanielsz' professional career was spent at Cornell University in Ithaca, New York, where he served as director of the Laboratory for Pregnancy and Newborn Research until his recent move to NYU.

His relationship with the Southwest Foundation for Biomedical Research began nearly 15 years ago, when he decided to expand his animal research program with sheep to include baboons. In addition to the baboon's genetic similarity to humans, its placenta closely matches our own, allowing Dr. Nathanielsz to study issues "more directly meaningful to the issue of fetal programming and preterm labor," he said.

Home to the world's largest colony of research baboons

and the Southwest National Primate Research Center, SFBR made a perfect collaborating partner.

The relationship has proved fruitful over the years, but now Dr. Nathanielsz wants to grow that collaboration as a means of finding the answers to the "how, when, where, and why" of fetal programming. That is why three members of his research team – Drs. Tom McDonald, Natalia Schlabritz-Lutsvich, and Keiko Aida – recently moved to the Foundation on a fulltime basis. In addition, Dr. Nathanielsz now travels to San Antonio for one week each month to work with his team and to establish new collaborations with other SFBR scientists.

"The answer to the story of fetal programming will only come by a complex interaction of more human epidemiology, more animal studies, more cell studies, the entire mix," says Nathanielsz, "but in the end, the final answers will come from studies of the whole animal, where we can look at the overall picture. Southwest Foundation, with its tremendous resources, is the only site in the world studying the issues of fetal programming in nonhuman primates. This offers us a unique opportunity to get to the bottom of these issues."

Dr. Nathanielsz says that, while scientists can and do collaborate across great distances, "there is nothing quite like falling in and out of people's offices. That's often how new ideas and new collaborations come up."

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**Dr. Natalia Schlabritz-Lutsvich and Joe Jimenez perform an ultrasound on a pregnant baboon to monitor fetal development.**

the Foundation to do this.”

That is why he already has sat down with SFBR associate scientist Dr. Anthony Comuzzie, who is involved in several research projects on the genetics of obesity. “We’re both interested in what controls the absolute amount of fat that you have, or the total number of fat cells in your body. If those are laid down in fetal life, that is obviously going to affect you later on.... But we cannot yet say to what extent our amount of body fat is determined by our genes or by fetal programming. We’ve got to look at the big picture to find out exactly what’s going on. Hopefully Dr. Comuzzie and I will be able to do that together through some new collaboration.”

Dr. Nathanielsz also has initiated a new project with Dr. Xing Li Wang, who is studying major factors that control the tone and size of blood vessels. “I think you will see that, if those mechanisms are laid down incorrectly in prenatal life, as you grow up you might have smaller arteries that are more resistant to blood flow, which would give you high blood pressure. So Dr. Wang and I are both interested in the regulation of blood vessel function.”

Dr. Nathanielsz expects these and other foreseen collaborations to yield exciting findings about fetal programming, which he describes as “the single most important issue in human health because we can do something about it right now.”

*Fetal Programming, continued from page 5*

## **Building new collaborations**

In fact, that is already happening at SFBR. In addition to research projects Dr. Nathanielsz’ team brought to the Foundation, new collaborations with SFBR scientists have begun to sprout.

“What is so exciting is that the Foundation is such a basis of knowledge. It has incredible databases of genetic information,” particularly on its pedigreed baboon colony, where the baboons’ family histories have been carefully recorded for six generations. “That is extraordinarily important, because the last thing we ever want to say about nature and nurture is that one is more important than the other. The two go hand in hand, and it’s very clear that different pregnant women and different fetuses with a different genetic makeup will respond differently to different environmental challenges. We have to try to marry the role of the gene and the role of the environment in influencing the gene, and there are tremendous, unique capabilities at

## **Application to daily life**

He advises us not to blame all of our health woes on our mothers and perceive a healthy lifestyle as futile, but to use newfound scientific knowledge in this area to create a healthier tomorrow. Armed with the proper information, parents can take steps to give their child the healthiest pregnancy possible. He notes, of course, that no pregnancy can be perfect. No mother-to-be can eat perfectly at all meals, avoid all stress, and get enough exercise and rest every day. However, aided by the support of those around her, she can try to reduce stress, improve her diet, and take other measures to safeguard her child’s future.

Dr. Nathanielsz says it’s not too late for adults, either. With a physician who is knowledgeable in this area of research, we can investigate our own prenatal life and the circumstances surrounding our birth. Then, knowing how those conditions might have increased our susceptibility to certain health problems, we can make appropriate lifestyle changes to help offset our risk. As Dr. Nathanielsz puts it, “...all of us can live a lifestyle that is in tune with who we are biologically.”



Dr. Pemmaraju N. Rao and James Cessac work together on the development of new synthetic compounds.

From cholesterol  
to cancer:

## Discovery of possible cancer therapies follows unexpected path



What started as a hunt to develop new cholesterol-lowering therapies today is yielding hope in the fight against cancer, thanks to a joint drug discovery program at the Southwest Foundation for Biomedical Research.

There has been a great deal of resulting excitement over the collaboration between the laboratories of Dr. Pemmaraju N. Rao, senior scientist and chairman of Organic Chemistry, who synthesized a series of novel derivatives of the estrogen metabolite 2-methoxyestradiol (2-ME2), and Dr. Susan Mooberry and her team in the Department of Physiology and Medicine, who tested the biological activities of these derivatives.

2-ME2 is a natural metabolite produced when estradiol, a female hormone also known as estrogen, is metabolized in the body.

In the April 1 edition of *Cancer Research*, an article by Drs. Tina Tinley, Lynne Wilkens, Rao and Mooberry and fellow researchers Rachel Leal, Deborah Randall-Hlubek and James Cessac, describes what Dr. Mooberry's lab learned from testing Dr. Rao's 2-ME2 derivatives *in vitro* (in cell cultures) and *in vivo* (in mouse models). It appears that four of the derivatives show advantages over the parent compound, which already is being evaluated against cancer in multiple Phase I and Phase II human clinical trials across the country.

The article in *Cancer Research* was preceded in December 2002 by two articles in *Steroids*. One, co-authored by Rao, Cessac, Tinley and Mooberry, describes the synthesis of the new compounds and a summary of their biological effects. The other paper, authored by Dr. Rao and Cessac, describes

an improved method Dr. Rao has developed for producing large quantities of the original metabolite 2-ME2. This might prove especially useful for pharmaceutical companies if

the compound's clinical trials are successful.

Who would have guessed this would all grow out of an original study aimed at lowering cholesterol?

Back in the 1960s, Dr. Rao was one of the first scientists to synthesize 2-ME2 and in subsequent years developed numerous derivatives for cholesterol research. While he found success in that area, he first realized the compounds' potential application to cancer when researchers at other institutions demonstrated 2-ME2's cytotoxic and antiangiogenic activity.

"If a drug is antiangiogenic, it prevents the tumor from creating new blood vessels and thereby constrains its blood supply, which will prevent tumor growth," explained Dr. Rao. "If a drug has cytotoxic activity, it kills the cancer cells themselves."

The researchers' findings created a great deal of interest in the scientific community because most current drugs work by one means or the other. Few have both cancer-fighting properties.

Since Dr. Rao had developed more than 20 new 2-ME2 derivatives, he realized that some of those derivatives could have equal or even greater potential in fighting cancer than the original compound.

The opportunity to appropriately test the 2-ME2 derivatives arose upon Dr. Mooberry's arrival to the Foundation in June of 2000. Following a move from the Cancer Research Center of Hawaii, Dr. Mooberry initiated a new cancer drug discovery program at SFBR. As part of the program, Dr. Mooberry designed evaluations to test the 2-ME2 derivatives for their antiangiogenic and antitumor effects. Her laboratory's findings are producing interest of

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Dr. Susan Mooberry focuses her efforts on cancer drug discovery.

## Promising compounds developed at SFBR:

### 14-dehydro-2-ME2

- Shown to be 6 to 15 times more potent than natural metabolite 2-ME2 for inhibiting endothelial cell activities, which may prevent tumor growth
- Shown to be 15 times more potent than 2-ME2 for cytotoxicity, or ability to kill specific types of cancer cells
- Demonstrated advantage against breast cancer in the mouse model

### 2-ME2-15 $\alpha$ ,16 $\alpha$ -acetonide

- Demonstrated advantage against breast cancer in the mouse model

### 15-dehydro-2-ME2

- Demonstrated advantage against prostate cancer when tested *in vitro*

For inhibiting endothelial cell activities – endothelial cells make up blood vessels, and thus their thwarted development would inhibit the growth of new blood vessels – this analogue ranged from 6 to 15 times more potent than 2-ME2 against various cancer cell lines. When evaluated for cytotoxicity, or ability to kill cancer cells, its potency was approximately 15 times greater.

Another analogue, 15-dehydro-2-ME2, also showed exciting results *in vitro*. “We found that 15-dehydro-2-ME2 totally killed off prostate cancer cell lines,” said Dr. Mooberry. “This was absolutely unique to this compound. The same result did not happen with any of the others, including the original 2-ME2. So it looks like this analogue has a real advantage over both the parent compound and all the other derivatives. This will be very intriguing to take into a mouse model to evaluate its antitumor effects, which we hope to do next.”

The group already has tested some of the derivatives in a mouse model for breast cancer. Here they saw promise as well. At the nontoxic dose selected by researchers, the original 2-ME2 showed no inhibition of tumor growth. Two of the derivatives did, however. The 14-dehydro-2-ME2, the same compound that proved more potent in the previous trials, had the highest efficacy against breast tumor growth, showing 29.4 percent inhibition of tumor burden. Another compound, 2-ME2-15 $\alpha$ ,16 $\alpha$ -acetonide, also showed good antitumor activity, with 26.7 percent inhibition of tumor burden.

“This would seem low compared to current drugs like Taxol, but you have to consider that we administered a dose that had no toxicity,” said Dr. Mooberry. She believes that at a higher dose, these analogues might show even greater antitumor activity.

“What is so exciting is that we have identified derivatives that have advantages over a natural compound that already is in human trials. Now we want to look at these analogues more closely and study them in additional models where they might prove effective,” Dr. Mooberry said. “We also want to look at them in combination therapy, because all chemotherapy nowadays is combination therapy. Can we possibly combine one of these compounds with another class of anticancer drugs and find a cure?”

That is certainly something we’re all hoping for.

*Cholesterol to Cancer, continued from page 7*

their own.

In tissue cultures, the derivative 14-dehydro-2-ME2 proved to be far more potent than the original 2-ME2, meaning it requires a smaller dose to produce the same desired effect. Just how much more potent depended upon the activity and cancer cell line.





Beatrice Franco (center) and daughters Yolanda (left) and Debra Lopez describe their positive experience with the San Antonio Family Heart Study. (Photo by Joe Mitchell. Used with permission from The Houston Chronicle.)

## Unraveling the **genetic code for heart disease in Mexican Americans**



One might say that Beatrice Franco and her family share in the joys and sorrows of being Hispanic.

On a positive note, they epitomize the family values associated with Hispanic culture. One of 10 children, Beatrice has 10 children of her own, along with 30 grandchildren and two great-grandchildren. The family is tight-knit, living in close proximity, visiting one another frequently, and pulling together to help out when one is in need. Beatrice's living room, where three walls are lined with family photos, visually demonstrates the bond they share.

Unfortunately, many in her family also suffer from one or more of the physical ailments that have a high prevalence among Hispanics: heart disease, diabetes, obesity, hypertension, and high cholesterol. One of the most affected is her daughter Yolanda, who battles a weight problem and has struggled with diabetes for the past 17 years. Improved diet, exercise and medication have made it possible for her to stop taking insulin injections, but

neuropathy has left her unable to tell if the temperature of her shower is too hot, if she has a nail in her shoe, or if ants are biting her feet.

Ironically, both sides of the story influenced the family's decision to join SFBR's San Antonio Family Heart Study. Beatrice's mother, who suffered and eventually died from a series of strokes, was the first to volunteer for the study and told all of her eligible children and grandchildren to follow suit. She wanted her family to help scientists find answers to the health problems that affected their lives, "and none of us would go against Mom," Beatrice says with a smile.

Beatrice's father, siblings, children, nieces, nephews, and grandchildren who were old enough all volunteered. Ten years later, they and some 40 families like them are still offering valuable assistance to SFBR researchers as they conduct the largest and most comprehensive study to date on the genetics of heart disease, diabetes and obesity in the Mexican American population.

Those efforts are yielding some exciting advances, with

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Dr. Jean MacCluer

*Heart Study, continued from page 9*

SFBR scientists having identified nearly two dozen genes that contribute to these complex diseases. With a recent five-year, \$11.5 million grant renewal by the National Heart, Lung and Blood Institute, part of the National Institutes of Health, scientists will try to build on that knowledge and gain new insights that could lead to improved medical treatments.

### The study's history and rationale

Officially called "The Genetics of Atherosclerosis in Mexican Americans," the program project more commonly referred to as the San Antonio Family Heart Study got its start in 1991. That is when Dr. Jean MacCluer, scientist in SFBR's Department of Genetics and principal investigator for the grant, teamed up with Dr. Michael Stern at The University of Texas Health Science Center at San Antonio to initiate the first comprehensive genetic study of cardiovascular disease risk factors in Mexican Americans.

"Despite the fact that cardiovascular disease is the leading cause of death in Mexican Americans, there had not been sufficient research on the disease within this particular population," said Dr. MacCluer. "Most related genetic studies up to that point had dealt with non-Hispanic whites, but my thought has always been, if you don't look to see if those genetic findings are relevant to Mexican Americans, how do you know that whatever treatment you develop will be useful for Mexican Americans? So we have to look."

Dr. MacCluer and Dr. Stern realized that they were in a perfect position to do the looking. "Dr. Stern's clinical and epidemiologic expertise fit very nicely with my genetic interests. So between his clinical staff and the scientists at the Foundation, we had all the expertise we needed."

In addition to that, San Antonio was the perfect city in which to conduct such an investigation. Not only does it

have a large Hispanic population, but many tend to be part of large families whose members choose to stay in the area. Large family groups were critical to the study Dr. MacCluer wanted to develop.

"If we were only to look at a large number of small families, each of those families might have different reasons for its susceptibility to heart disease. So when we put all their information together for analysis, the results would be very confusing. There wouldn't be any type of pattern evolving. On the other hand, when you look at big families, with many of those family members sharing the same cause for their heart disease or diabetes or obesity, it's much easier to see a pattern and to find that cause for disease."

### Getting started

Once the grant was awarded, Dr. Stern and his staff at the Health Science Center went about the huge task of finding willing study participants who were part of large families. Their efforts yielded 41 families, varying in size from 30 to more than 100 members, for a total of 1,431 research participants. This makes the study the largest of its kind anywhere in the country.

Each participant's commitment has involved a one-day visit to the Health Science Center during each of the five-year grant periods to take a series of medical tests.

Blood samples, surveys, and test results are then used by scientists at the Southwest Foundation to look for genetic contributors to heart disease and its frequent counterparts, diabetes and obesity.

Dr. MacCluer says it is natural to study all three at once because "...Mexican Americans have a large problem with diabetes; heart disease is the leading cause of death in diabetics; and obesity is a contributing factor to diabetes."

The study has proven to be a huge project, pulling together the research efforts of more than 30 scientific staff



## Why focus on Mexican Americans?

### How Related Diseases Affect Mexican Americans in San Antonio

#### Diabetes

- ... is 2-3 times more prevalent than in non-Hispanic whites.
- ... has a prevalence of 20 – 25% in Hispanics over age 40.

#### Obesity

- The mean Body Mass Index (BMI) for Hispanics in San Antonio is 29. (A BMI of 25.0 to 29.9 is considered overweight. A BMI of 30 or above is considered obese, and 40 or above considered severely obese.)
- At least 30% of San Antonio Hispanics meet the definition of obese.
- While Mexican American populations have generally led in these levels, the general population is beginning to catch up. Recent CDC data classifies 27% of the U.S. population as obese.

#### Heart disease

- Blood pressure and triglyceride levels tend to be higher than in non-Hispanic whites.

members at SFBR. In addition to Dr. MacCluer, principal investigator, Dr. John Blangero serves as a co-principal investigator along with UTHSCSA's Dr. Stern. Dr. Richard Bauer of UTHSCSA is responsible for clinical activities. Other SFBR project and core leaders include Drs. Laura Almasy, Anthony Comuzzie, Bennett Dyke, Michael Mahaney, David Rainwater, and Xing Li Wang.

### Research findings

During the study's first five years, scientists focused their research on about two dozen candidate genes, or genes that other scientific studies had suggested might play a role in heart disease. While some of that initial research proved fruitful, it was the second five years of the study that really opened the door to new scientific understanding.

"By that time, the whole field had evolved so that, instead of just focusing on specific genes that were already known, everybody had the capability of examining genes distributed throughout all the chromosomes, hundreds of them, and we didn't have to know what the genes did or if they did anything," said Dr. MacCluer. "We just had to know that there was variability in these genes from one person to another and that they were located in specific places on specific chromosomes. We could then use that information in statistical analyses to show that the patterns of variation in a particular gene seem to coincide with the variation in HDL cholesterol, for example."

Using this approach, scientists have identified more than 20 genes that influence physical traits such as cholesterol; insulin and glucose levels; leptin levels, which affect appetite; and an individual's fat mass.

Now the scientists are broadening their scope once again by further investigating identified genes to learn how they function. They also want to begin searching for genes that affect traits they have not previously studied, such as inflammation of the arteries and veins.

"Ten years ago, inflammation wasn't known to be such an important component of heart disease, but now it appears to be very important. So we want to look for genes that influence this and other traits we didn't examine previously," said Dr. MacCluer.

With the study entering its second decade, researchers are gathering important longitudinal information as well. "We're able to examine how the participants' risk factors have changed over time and whether that has anything to do with their genes," said Dr. MacCluer.

Beatrice Franco and her family are happy to volunteer for the third phase of the study. Although researchers tell them that the study-related tests should not replace a regular physical exam by their physician, family members use the study as an opportunity to learn more about their own health.

"We love being a part of the study. It helps us learn more about ourselves and where we are health-wise," said her daughter Yolanda. That is how Beatrice learned of her high cholesterol, how one of her sisters discovered that she had diabetes, and how Yolanda learned of some dangerous blockages that had formed in her arteries.

Researchers at SFBR are also happy that participants want to continue with the study. As they are able to learn more about the particular genes that affect heart disease and how those genes function, that knowledge can be used to develop improved treatment and prevention therapies.

"Our ultimate goal is to find genes that we know have an effect on heart disease – perhaps specifically in the Mexican American population but possibly for the population at large – and in collaboration with others, maybe even commercial interests, develop products that take advantage of that genetic information to develop treatments for heart disease, diabetes and obesity. If we can find a gene that tells somebody how to develop a drug that would help treat, if not cure or prevent these diseases, then we would consider that we have achieved our goal."

# The "i" in science

## Dr. Tom Butler leaves his mark at SFBR and beyond

*a*

As the year 2002 came to a close, so did an important period in the history of SFBR's Department of Laboratory Animal Medicine (recently renamed the Department of Comparative Medicine). Thomas Butler, DVM, MS, retired as department chair, a position he held for more than 16 of his 18 years at the

Foundation. During that time, he oversaw and facilitated tremendous growth in the department as he expanded its service to the scientific community. Always intent on providing the highest quality of animal care and supporting the valuable research of SFBR scientists, Dr. Butler also worked to bring in contracts with other biotech organizations to increase productivity and provide additional revenue for the Foundation. In part because of these efforts, the department grew during Dr. Butler's tenure from a staff of 17 in 1984 to nearly 75 in 2002.

Even before joining the Foundation, Dr. Butler had an impressive background as a veterinarian working in laboratory animal science. His 22-year career with the U.S. Air Force led him from Holloman AFB in New Mexico, where he served as chief of the 6571st Aeromedical Research Laboratory, to Brooks AFB in San Antonio. There, he served as Chief of the USAF School of Aerospace Medicine's Veterinary Education Branch until taking director positions in the areas of Biodynamics, Bioengineering, and Chemical Warfare Defense for the Aerospace Medical Division Headquarters. He eventually became the division's Deputy Commander for Research, Development and Acquisition.

While Dr. Butler leaves big shoes to fill, the Foundation wishes him all the best in his retirement and is pleased that he has graciously agreed to serve as a consultant to the organization on a part-time basis. Before he officially stepped down from his leadership role, we asked Dr. Butler to share some thoughts about his years of service. This is what he had to say:



Dr. Tom Butler has spent the last 18 years caring for the Foundation's animal colony.

*You've said that your interest in veterinary medicine began when you were a young boy growing up on an Alabama farm, but your desire to work in lab animal science was spurred by the Space Age. How so?*

After my family moved to Corpus Christi, I got a job helping out at a veterinary clinic, and I just loved it. The medicine of it was intriguing to me. I like puzzles, or really problem solving, and that is what medicine is. Your inner self says that you want to help your patient, which in my case is an animal. To do that, you've got to collect information about the animal, put it into your internal computer and solve the problem. Then you have to select the best treatment, which is also part of the problem solving. It's fascinating to me. So I thought I would go to veterinary school, then go back to Corpus Christi and set up a private practice as a veterinarian for dogs and cats the rest of my life. That got changed.

My senior year at Texas A&M, they took us on a field trip to the School of Aerospace Medicine at Brooks Air Force Base. That was 1962, at the height of the Space Age.

# I work in animal research because I love animals.

John F. Kennedy was president and was really pushing to get man in space, and the School of Aerospace Medicine was very active in animal research to help prepare for that. On this tour, I got very interested in this field I had never heard of before, laboratory animal medicine. But I thought, “Well, that’s beyond me. I can’t do that.”

*But in fact you later joined the Air Force, where you were given a veterinary assignment at Holloman Air Force Base with the Chimp Space Program. What was that work like?*

Chimpanzees were valuable in space research because you could train them for a certain performance and get them up to 98 or 99 percent accuracy, then see if that accuracy was affected by new conditions, such as high altitude. We also studied them for basic scientific things like oxygen consumption. As the space program wound down – I was the last person remaining at the Holloman laboratory before they turned it over to a civilian university in 1971 – we gradually got fewer projects that directly related to space and more projects that related to humans in the military work place.

*What were some of the military issues that you studied, both while you were at Holloman and afterwards, when you moved to Brooks Air Force Base?*

For example, in the old days, pilots were grounded if they were taking prescribed medication, but maybe they didn’t have to be if the medication wouldn’t affect their performance. So we did studies with monkeys and chimpanzees that had been trained for various performances. We would give them a drug, something like an antihistamine, and then see if they could still perform at the same level of accuracy. If they could, we could determine that it was safe for pilots to fly while taking that medication.

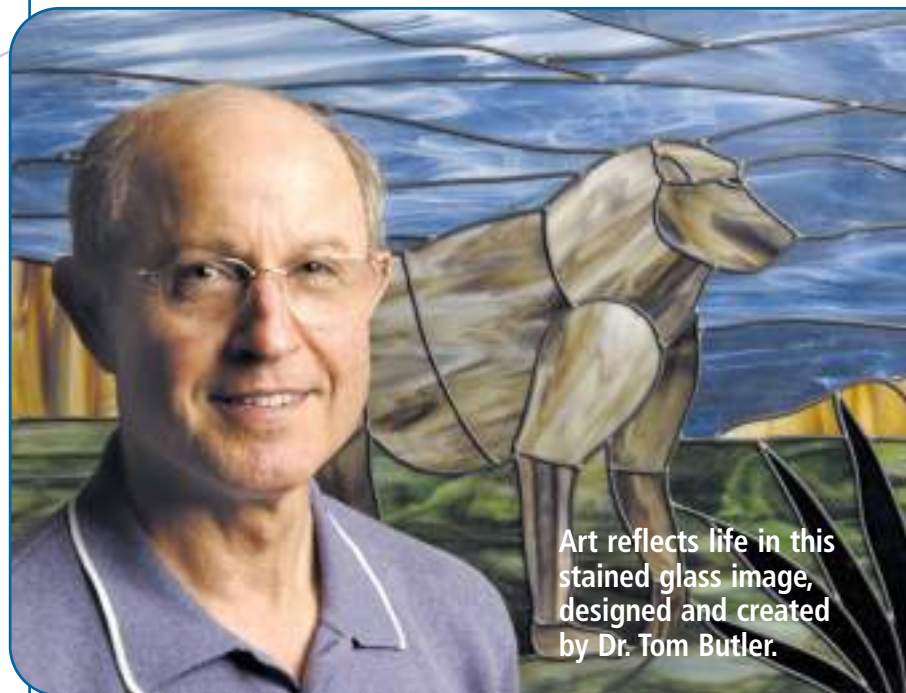
*What is it like having an animal as a patient? They can’t talk and tell you what is bothering them. Does that make the work more appealing to you since it’s a harder puzzle to put together?*

Yes, that’s part of the challenge, because you need to know more than just medicine. You have to understand animal behavior. For instance, you need to be familiar with their gait, or how they walk, because oftentimes that can tell you about ligament damage. You also need to understand the biology and behavior of a wide variety of animals, which further complicates the puzzle. One of the reasons I love working with chimps is that they pose additional challenges since they are smarter, have more personality, and of course, are so strong. For example, if I tell a client that their dog has to be given a pill twice a day for seven days, they can just roll that pill up in a bowl of food or open the dog’s mouth and put the pill down his throat. You can’t do that with a chimpanzee. You have to figure out a way to get that chimp to want to take that medicine. To do that, you need to know that this one loves orange juice, and that one likes peanut

butter and jelly sandwiches, and another one likes something else.

*After your retirement from the military, why did you want to start your second career at Southwest Foundation?*

I was familiar with the Foundation as a highly respected research institution, and I loved that it would give me the opportunity to continue working with chimps and monkeys. I also was thrilled by the type of work I’d be doing. I consider myself a generalist. I prefer to know a little bit about a lot of things. So it was appealing to me to work in a department that allows me to interact with people in virology, immunology, physiology, medicine, and genetics.



Besides that, research is appealing to me because it allows me to truly practice medicine. Veterinarians in private practice are limited in what they can do because, once a treatment gets too complicated or expensive, pet owners will often elect to have an animal put to sleep. However, in the research field, it is important to study and care for animals as they go through many of the same health problems and treatments as humans do, from a premature delivery to diabetes and osteoporosis. So I get to learn more, delve deeper into the field of medicine, and take care of the animals in a manner I think is appropriate.

*With your love for animals, has it been hard to stay in animal research?*

People I know in the animal rights community often ask me that same question. My answer is really that I work in animal research because I love animals. Unlike the more radical animal rights activists, I believe that we have to use

*Continued on page 14*

*Dr. Butler, continued from page 13*

animals in research so that we can advance the art of medicine for animals as well as humans. By working in the research field, I can help ensure that we use as few animals as necessary for this purpose and that they are treated humanely. I can do much more for animals and for humankind by working in research than I can by protesting against it.

*As attending veterinarian for the Foundation, one of your primary roles is oversight of its animal colony and assurance that SFBR stays in compliance with regulations regarding their care. Beyond that, you've done a great deal to advance the role of your department, leading it through a period of tremendous growth.*

I've tried to have a vision for the department, but the best thing I've done is to hire outstanding people, provide them with whatever support or resources they need to be effective, and then stay out of their way so they can do their jobs. Our veterinarians and support staff are really top-notch people. All I have to do is give them a little encouragement and support, and they just take off. And our animal caretakers are so devoted to their jobs. Some have been at the Foundation longer than I have, and they are here in 100-degree weather or below freezing, dry or rainy. When it snowed here in the 1980s and roads were closed, we had some who rode into work on their bicycles. They care about what they do, and their efforts have made me look good.

*Looking back on your years here, what are you most proud of? Is there any type of legacy you'd like to leave?*

Primarily I would like my mark to be that, during my tenure here, our animals have been used judiciously and humanely, and that they've been better off because I was here. Secondly, my hope is that the research our department has supported, whether for an in-house or external investigator, has truly improved human health.

*You've made your mark outside the Foundation as well, doing extensive volunteer work in your field. Local groups benefiting from your veterinary services or consultation include Primarily Primates and Wildlife Rescue and Rehabilitation. But perhaps your biggest mark in this area is your assistance in starting Chimp Haven, Inc., a nonprofit organization that is creating a sanctuary in Louisiana for chimpanzees that*



*have been retired from biomedical research.*

This is an exciting project that got started when Dr. Linda Brent, a scientist in our department who serves as Chimp Haven's president, came to me with an idea. She had been working with chimps and around research long enough that she saw a need for chimpanzees, once they were through with research, to go to a sanctuary. Chimpanzees have been and will continue to be needed as models for research, but when they have completed that service, they should be able to live out their lives in a naturalistic, spacious environment. It's good for the chimpanzees, and, quite honestly, it will save research institutions the great expense of providing the animals with years of care. So it's a win-win situation, and several people from the Foundation are among the volunteers working to make it possible.

*What are your plans for retirement?*

I'll stay active with my church and other volunteer activities. I'll continue working with Chimp Haven and doing site visits for AAALAC (the Association for Assessment and Accreditation of Laboratory Animal Care, International), for which I've served as a consultant for 26 years. That has required me to do site visits at about 175 different research facilities around the world, and I believe in the importance of that work. I'm also going to serve at SFBR as a consultant on a part-time basis. I'll work in my areas of expertise and hopefully lighten the load for someone else. A real desire of mine is to get back to making stained glass. That is a hobby I really enjoy, and I haven't had much time for it over the past few years. Other than that, my wife, Pat, and I are looking forward to more time to visit our children, Greg and Shannon, and their families.

*It's been said that you have three priorities: faith, family and work. Is that accurate?*

Yes, and probably in that order. People sometimes say, "You work so hard. Work must be the most important thing to you." But it's not. It's third. When it comes to work, there is always somebody else around who can do my job. I hope I will be missed after I retire, but I know that the Foundation and this department will keep right on going. If I didn't believe that, I wouldn't be retiring.



Tom Frost

## In the spotlight:

Board member

# Tom Frost



Each issue of "Progress" highlights a member of SFBR's stellar Board of Trustees. In this issue, we focus on Tom Frost, senior chairman of Frost Bank. Through his career, his civic leadership positions and volunteer efforts, Mr. Frost has significantly and positively impacted San Antonio's history as well as its future. In January, we sat down with Mr. Frost and asked him to reflect on the milestones in his life. We thank him for allowing us to share those thoughts with our readers.

*As a member of SFBR's Board of Trustees for more than 30 years, you've shared half of the Foundation's history. What stories in that history are most memorable to you?*

It's been a long, happy time that I've been with the Foundation. Over those years, I've enjoyed not only watching it grow, but also the biotech industry in San Antonio grow with it. As a young fellow, when I first joined the board, I didn't have a real understanding of what a research institute was, or even what was going on in biomedical research. One thing I did understand, though, was that the Southwest Foundation and its sister organization, the Southwest Research Institute, were the two single largest employers of PhDs in this town. We didn't have a Health Science Center then or a UTSA, and the small number of highly educated individuals working in San Antonio made recruitment difficult. It's a different situation now. Together with The University of Texas Health Science Center, the two major military hospitals, UTSA and now the

Cancer Therapy and Research Center, SFBR is an important part of a consortium of entities that have formed a real bioscience industry in San Antonio. This is something we did not have and we would not have today if it were not, I believe, for the founding of Southwest Foundation. It really was the genesis of biomedical research in our city. I'm very proud to have been just a small part of it all.

*Actually, you've played a major role in the development of San Antonio's health care and biotech industries, since you were heavily involved with the creation of the South Texas Medical Center. At the time, did you realize what would come from those efforts?*

When I say I was in the middle of all that, I mean that I was one of those who joined with the Chamber of Commerce to get the entity going to raise the money to have a Medical Center. My particular interest was with the group that started Methodist Hospital, and I served as its treasurer. Everybody talks about all the people involved in that and the vision they had, and I was with them, but we didn't anymore understand what we were doing than flying to the moon. I can remember thinking the Medical Center would be a place with four or five hospitals and a medical school. I think we've all been amazed by its tremendous development. It's been a wonderful thing.

*Of course, it wasn't an easy row to hoe in the beginning.*

No, the decision of where to put the Medical Center was one of the most divisive issues in San Antonio history. There were a lot of people, including my own father, who wanted it to go downtown next to the Brady Hospital, or Bexar County Hospital. But I was at the UT Board of Regents meeting where they voted unanimously to put it on the northwest site, where they could have a large campus with room to grow. I had to come home and tell my dad that, if UT did come to San Antonio, it would locate on the northwest site and we would have to build a teaching

Continued on page 16

Tom Frost, continued from page 15

hospital for it, meaning the city would have to operate two charity hospitals. He looked at me and asked, "What do you think, Tom? Do you believe it's worth it?" I said, "I absolutely do," and he said, "Well then, let's do it." That gave me my marching orders to work to make it happen. Then I was free to join John Peace and a few major taxpayers in a meeting with Buzzy Reeves, who was the deciding vote in a split decision by the Bexar County Commissioners Court to double the taxes of the Bexar County Hospital District. That was a terribly divisive thing, and yet what came out of it has created so many jobs and done such wonderful things for the community that I think it's helped heal any wounds.

Then Methodist Hospital had challenges of its own. At first, we were the only hospital out there, and we had to struggle to keep going. I can't tell you how many times I burned the midnight oil trying to get the money to keep the hospital alive. Just two or three weeks after it opened, a trustee and the guy running the hospital took me to lunch and told me, "We're out of money. We've used our entire line of credit." It was just like they pulled the floor out from under me. So, besides arranging more lines of credit, I turned to some lifelong friends at an investment firm and asked them to help me sell some bonds to bring in funds. We sold probably a million and three quarters in bonds that had no reason they would pay off other than that people just believed Methodist Hospital would work. And it did. So I'm very proud of that.

*Weren't you in a similar situation with HemisFair '68?*

Yes. Most people don't know that three weeks after it opened its manager left his desk and never came back. The treasurer came to me and said, "We're out of money." It was the same story again, just a few years later. That is when my father and I got the fair's major underwriters together at the bank, and Dad asked Mr. Zachry to run the fair. He said, "I'll do it if you'll let young Tom raise the money we need to stay open." My father looked at me, and I said, "We've got to," so we started right there. I met with all the underwriters, explained what was happening, and told them they had to put in more money or the fair would close. They all did, and of course, that kept the fair open.

So I'm proud of those accomplishments, but I have to say that both of those problems – with Methodist Hospital and with HemisFair – were solved on the pews of Christ Episcopal Church. I remember all of those Sundays were really downers. I was on my knees asking for help on how to get there, and it came. I still think of that on Sundays when I go to church, about the power that was given to me and how it influenced the whole community. Things like that happen. We're all instruments of God's work.

*While you've helped lead the city through some difficulties, Frost Bank has had to overcome some major obstacles as well. Founded shortly after the Civil War, it survived the two World Wars, the Great Depression, and then the 1980s, when many*



Tom Frost stands near the downtown statue of his great-grandfather, Col. T.C. Frost, who has often been his "guiding light."

*other banks fell with the collapse of the oil and real estate markets. In fact, Frost was the only one of the top 10 Texas banks to emerge successfully without a buyout or government assistance. What has kept Frost Bank so strong?*

I've reflected on that, and I believe the reason we succeeded is the reason why we exist. We were founded on principles laid down by my great-grandfather and handed down to me through my father and great-uncle. Those principles have gotten us through some tough times. First is an understanding that an institution such as ours will not grow if the community doesn't grow, so our policies and practices all need to be in tune with those that are beneficial for the growth and development of the community. Second, we aren't in the money business. We are in the people business. Our real job is to find good, capable, honest, qualified people to serve those who need financial services. Third, we do not make our money on individual transactions. We make it by building long-term relationships with customers. Finally, my uncle always told me, "Tom, we make our decisions together, so when something doesn't turn out, nobody gets a finger pointed at him. There is no fall guy. If we decide something together and it goes wrong,





## Southwest Foundation

**was the genesis of biomedical research in our city. I'm very proud to have been just a small part of it all.**

– Tom Frost

we decide together and work together to solve it.”

All of those things worked together to save us in the 1980s. For one, we didn't finance projects. If you look at the banks that failed, they financed projects like hotels or developments or oil fields, and when those projects failed, the banks failed. We didn't do that. We financed people, and we did business with the right people. Some of them happened to be in the real estate business or the oil and gas business and didn't do well, but they were people of character who really stuck it through, so fewer of them went under. The other thing that saved us is that, when bad things started happening, we didn't start pointing fingers. Many other banks couldn't sit down and solve their problems because they were fighting one another. Finally, I think it's benefited us that we have had true management succession, where one management follows another with the same values, principles and procedures. You don't find that with a lot of businesses today.

*Your great-grandfather, T.C. Frost, was a man of many accomplishments: a district attorney, Confederate colonel, Texas Ranger, postmaster, Latin teacher and merchant who eventually started Frost Bank out of the corner of his one-room store. Has he been an inspiration to you?*

I've thought a lot about Colonel Frost and how he did what he had to do when times changed. He had just moved his family to Texas when the Civil War came along, and he had to find a new way to make a living. That's how he ended up here in the bank. It wasn't even a bank when it started. It was a store. There were no financial institutions here right after the Civil War, so merchants had to finance their customers. His customers were ranchers, and he financed them, and from financing them and selling them goods came the bank.

So he's been my guiding light. Whenever a change happens and I don't know what to do, I tell myself that the Colonel made a number of big changes in his life and was successful, so I should change, too. We've tried to follow that philosophy at the bank, and my father has a famous statement related to it. It was when I was telling him about credit cards and how we could use them to reach out to more people. We could give people these cards and kind of make loans on them. He said, "Well, I don't know if I like the way the world is turning, but I think I'll turn with it."

*You have worked diligently to cement and grow San Antonio's relationship with Mexico, fostering relationships with Mexican banks, presidential administrations and various consuls general. You also successfully lobbied for the passage of NAFTA and the placement of the NADBank in San Antonio. Why has this been a priority for you?*

My relationship with Mexico started because of my great-uncle, who was the first U.S. banker to travel to Mexico, call on Mexican bankers and speak to them in their own language.

At a time when nobody else really thought of doing business with Mexico, he used to tell me, "At some point, Mexico will grow and develop to where it will be economically very important to this bank and to San Antonio." Through my own experience, I've realized what my uncle said is true. I have long wanted Texas to take advantage of the opportunities in the trade of manufactured goods from Mexico. Now that is finally happening under NAFTA. Eventually, I think San Antonio can be a platform for the sale of Mexican manufactured goods throughout the United States and Canada as a distribution center.

*Is your concern for San Antonio's economic development the reason for your numerous leadership efforts to improve education?*

Education is how we can lift ourselves up by our bootstraps. More than just helping children be better people, education is a link to improved quality of life. I've devoted most of my career to economic development, and economic development can't happen without a strong, viable education system.

*You have a keen interest in San Antonio history. What do you consider some key events in our city's past?*

The most important year in San Antonio history was 1968, when we opened HemisFair in April and in the fall had the first medical student enrolled at The University of Texas Medical School at San Antonio. That's a little piece of iconoclasm because it doesn't have anything to do with Davy Crockett or Sam Houston or the Spaniards or anything like that, but those dates are so important because they were the basis of the significant growth and development of San Antonio for the last generation. HemisFair is when we turned the river around and gave birth to our hospitality industry. And today health care is an even bigger industry for us than tourism. Both have been major sources of employment here for the past 35 years.

Of course, I can't talk about our city's history without paying tribute to the brilliance of Tom Slick. When he started Southwest Foundation, there were a lot of people who thought his ideas were wild and impractical. But now looking back on it, I think his situation was much the same as with the Medical Center and HemisFair. We didn't really know what we were doing, and maybe Tom Slick didn't either, but he had the basic idea and worked to make it happen. I think if he could see SFBR today he would be startled by its amazing success and proud that he had the idea for it. His is a marvelous example of how an entrepreneurial idea can bring about something of long-lasting value. Without his entrepreneurial inspiration, we wouldn't have Southwest Foundation, and it wouldn't be the leader and the very thing that started the biomedical industry in San Antonio. That's what our city needs: more entrepreneurial inspiration for the future. Maybe there's another one like Tom Slick around. I hope we find him.

# Joining SFBR's mission to **improve human health**

The Southwest Foundation for Biomedical Research would not be in its position of international leadership in biomedical research without the contributions of many corporations, foundations and individuals throughout the community.

Philanthropic partnership has played a momentous role in the Foundation's success. Unlike universities and many hospitals, SFBR cannot depend on state budget financing, patient revenue or tuition to support innovative and progressive expansion. Instead, SFBR must rely on private philanthropic investment.

SFBR researchers benefit tremendously from the contributions given by its support groups: The Golden Circle, The President's Circle, The Corporate Circle, The Founder's Council, Southwest Foundation Forum and The Argyle.



Robert and Betty Kelso

## Circles of support

The Golden Circle, The Corporate Circle, and The President's Circle include some of SFBR's closest friends and supporters. As individuals and businesses who believe in the continuing value of basic biomedical research, they make sizeable annual contributions to the Foundation that can be used for new scientific equipment or other resources to assist in SFBR's research efforts. Each year, Golden Circle members donate \$1,000 or more; Corporate Circle members donate \$2,500 or more; and President's Circle members donate \$5,000 or more.

To thank these good friends for their generous support, the Foundation sponsors an evening reception each fall, typically at the residence of a Circle member. On November 14, Robert and Betty Kelso kindly offered their home for the occasion. The Foundation and its guests thank them for hosting a beautiful and fun-filled evening.

### Some of the honored guests in attendance included:



Marnie McDermott and Brig. Gen. Robert F. McDermott, USAF (Ret.)



Peggy and Duncan Wimpress and Harry and Laura Brusenan



Stanley Jung and Ruth Eilene Sullivan



Forum representatives gift \$52,000 in gala proceeds to SFBR.

## Southwest Foundation Forum

*From La Villita to the laboratory: Gala proceeds benefit scientific research*

The Forum's fund-raising activities proved fruitful this past summer, when Forum representatives Prissy Kent and Sandra Wright presented SFBR with a check for \$52,000 in proceeds from its 2002 spring gala, held at La Villita Assembly Hall. The generous gift has funded two pilot studies that will help keep SFBR on the cutting edge of science.

One grant went to Dr. Susan Mooberry, Department of Physiology and Medicine, for a new cancer drug discovery program. Dr. Mooberry is collaborating with the Botanical Research Institute of Texas to collect plants native to the Lone Star State and then examine their chemical constituents for activities that predict tumor-fighting ability.

The second grant supports the work of Dr. John Bigger in the Department of Virology and Immunology, who is studying herpes viruses. Statistics show that 50 to 70 percent of Americans are infected with herpes simplex virus type 1 (HSV1), and about 20 percent are infected with HSV2. These viruses cause cold sores and, less frequently, other diseases like corneal blindness, encephalitis and even potentially fatal disease in newborn babies.



Forum members enjoy the Fall Lecture Luncheon.

### A word from our scientists

The Forum's 2002-2003 lecture luncheons proved to be a big hit, with packed houses greeting both speakers.

The November luncheon featured Dr. Jean Patterson, SFBR's chair of Virology and Immunology, who described her department's efforts to develop vaccines and treatments for select agents, or those viruses and bacteria considered by the federal government to be possible agents of bioterrorism.

In March, Forum members heard from Dr. Laura Cox, staff scientist in the Department of Genetics. In showing the relatedness of people around the world, she also demonstrated why the discovery of genes influencing heart disease, hypertension and other deadly and hereditary illnesses make continued genetic research not only challenging but imperative.

For information about joining the Forum, please contact Francie Calgaard at (210) 822-7315.

## The Founder's Council

The fall and winter months gave Founder's Council members the opportunity both to learn about and contribute to cutting-edge biomedical research.

### Hunting for the 'cholesterol of schizophrenia'

In September, they attended a lecture luncheon featuring Dr. Laura Almas, who leads a new study on genetic contributors to schizophrenia. She described the study as a hunt for genetic sign posts that can serve as what she calls the "cholesterol" of this mental illness. She explained that high cholesterol is a warning sign for heart attack risk; however, there currently is no way to measure one's degree of risk for schizophrenia.

As part of her presentation to the Founder's Council, Dr. Almas involved luncheon guests in one of the cognitive tests taken by study participants. Guests said it was a fun way to learn about a very serious topic.



Richard Peacock presents Founder's Council grant awards to SFBR scientists, then hands over the reins as council president to Robert Shemwell.

### Considering matters of the heart

In February, luncheon guests considered "Matters of the Heart" as Dr. Jean MacCluer described the Foundation's progressive research on the genetics of heart disease in three minority populations. Her talk included an update on the San Antonio Family Heart Study, featured on pages 9-11 of this publication.

### Funding scientific research

At its annual holiday party in December, the Council awarded grants for laboratory equipment to support the research of three SFBR scientists:

Dr. Jonathan Allan, Department of Virology and Immunology, for a digital camera to capture real-time, publication-quality images of AIDS virus-infected cells under investigation at SFBR.

Dr. Xing Li Wang, Department of Genetics, for a vacuum pump that assists in the purification and concentration of DNA, which is essential for the study of molecular events leading to heart disease.

Helen Martin, Department of Physiology and Medicine, for a new IV infusion pump that administers medications to premature baboons in SFBR's neonatal intensive care unit.

The Founder's Council brings together young professionals to serve as leaders in support of biomedical research. For membership information, call Corbett Christie, SFBR's chief development officer, at (210) 258-9870.

# About Southwest Foundation

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As one of the world's leading independent biomedical research institutions, the Southwest Foundation for Biomedical Research is advancing human health. Today, SFBR's multidisciplinary team of nearly 75 doctoral-level scientists work together on more than 175 major research projects.

Located on a 332-acre campus in San Antonio, Texas, Southwest Foundation partners with hundreds of researchers and institutions around the world, targeting advances in heart disease, diabetes, obesity, cancer, hypertension, psychiatric disorders, AIDS, hepatitis, malaria, parasitic infections and a host of other infectious diseases.

SFBR is the site of the Southwest National Primate Research Center and home to the world's largest baboon research colony. The Foundation enjoys a distinguished history in the innovative, humane and appropriate use of nonhuman primates for biomedical research.

SFBR was created through the philanthropic vision of Thomas B. Slick, Jr., in 1941, and it relies on philanthropy to sustain it today. Seventy percent of its annual budget is funded from competitive, peer-reviewed grants, while another 12 percent comes from contracts with biotechnology and pharmaceutical firms. Remaining expenses must be met by the generous contributions of foundations, corporations and individuals, as well as earnings from SFBR's permanent endowment.

Southwest Foundation for Biomedical Research is dedicated to improving human health through research on the detection, cause, prevention, cure and eradication of disease. For more information, please contact the Foundation at (210) 258-9400, or visit our website, [www.sfbr.org](http://www.sfbr.org).



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