

PROGRESS

A Publication of the Southwest Foundation for Biomedical Research

Pressure

*What determines
your stress limit?*

INSIDE:

Honoring Dr. Frank F. Ledford Jr.
Page 6

*New explanation for the
intercontinental spread of
drug-resistant malaria*
Page 11

*Record grant to primate center
enables the development of
new resources*
Page 13

*In the spotlight:
SFBR Chairman John Kerr*
Page 16



President's Column

Dr. Frank F. Ledford Jr.

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As I write this column, the end of 2004 draws near, as do my plans to retire as SFBR president. I approach both with a happy heart because of the bright future I see ahead.

When I walk or drive around the campus today, it is apparent that SFBR has prospered over the years. It shows in the many physical changes that have been made to the campus, including the addition of new and upgraded facilities for scientific research and for the Foundation's valuable animal colonies.

These campus upgrades give our scientists the tools they need to excel. They also serve as a visual manifestation of two key elements to SFBR's success: generous community support and the tremendous productivity of our scientists. Both are at an all-time high.

Recently the Foundation completed the largest capital campaign in its history, surpassing a goal of \$40.3 million to renovate the campus, build our endowment and support scientific recruitment. 2004 also marks another record-setting year in the dollar amount of new grants and contracts awarded to SFBR scientists. This achievement is partly due to the single largest grant in SFBR history, the five-year base grant renewal for the Southwest National Primate Research Center by the National Institutes of Health.

In this issue of *Progress*, you can read more about the impact this major grant will have on SFBR and its ability to search for new preventions, treatments and cures for disease. You also can get a sense of the breadth of our scientific research. One article discusses genetic contributions to stress and anxiety while another explains a major discovery about the intercontinental transmission of drug-resistant malaria.

I am honored that in this volume of *Progress*, which includes a story about my life's work, SFBR Chairman John Kerr was willing to let us share his story with our readers. He and I share many loves – history, music, science, and certainly SFBR. His distinguished leadership of our extraordinary Board of Trustees is part of what gives me such optimism about the Foundation's future.

Under the board's direction, the new president and new scientific director will work with SFBR faculty and staff to craft a strategic vision that will lead the Foundation through the next decade to an even higher level of excellence. You, the friends and supporters of SFBR, will play a vital role in bringing that vision to reality.

The success of this organization is due to the caliber of our scientists and the tremendous support we enjoy from our loyal group of donors, the San Antonio community, and the many other research organizations with which we collaborate. I thank you for the role you have played in giving me 12 great years at SFBR, and I salute you for enabling scientific progress that benefits all our lives.



SFBR at your fingertips

Would you like to stay up to date on the latest scientific advances at SFBR?

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PROGRESS

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Stress and anxiety

What determines when you reach the end of your rope?



Stress and anxiety are normal parts of life, and it is not uncommon for individuals to experience “the blues” now and then. After all, job stress, family problems, financial worries, health concerns and the never-ending hustle and bustle of everyday life can get us all down. And certain times of the year – the anniversary of a sad event or even the joyful holiday season – can often magnify the stressors in our lives.

So if we all experience stress, why is it that people handle stress so differently? Why do some have an easier time rolling with the punches, while others are more quickly overwhelmed or prone to anxiety? What, in fact, has led 19 million American adults to suffer from anxiety disorders such as generalized anxiety, obsessive-compulsive disorder, panic, post-traumatic stress, and social phobias?

Surely, there is no simple answer. An individual’s personality, life experience and support structure are just a few influential factors at play. These things have to be considered along with physical conditions that can affect our behavior. For instance, some forms of psychopathology in humans are related to dysfunction of neurotransmitter systems, as reflected in levels of neurotransmitters such as serotonin and dopamine in cerebrospinal fluid.

Genetic differences among people also appear to play a role. Our genes may be influencing our susceptibility to anxiety disorders or depression. Researchers believe that when genetic differences influence psychological problems, they probably exert that influence through underlying physiological or anatomical features in the brain, such as the levels of specific chemical components of neurons or the number of connections between specific parts of the brain. For example, the levels of neurotransmitters such as serotonin that are influenced by clinically effective treatments for depression are believed to be heritable in humans, although data in this area is limited.

Scientific sleuthing may unravel mystery

This is where the detective work of Dr. Jeff Rogers, a scientist in the SFBR Department of Genetics, might be able to uncover some answers. Over the past few

Continued on page 4

years, Dr. Rogers has been building a program that is looking at genetic contributors and other physiological aspects of anxiety in nonhuman primates, with potential application to anxious and depressive disorders in humans. His program pulls together multiple research efforts by Rogers and other investigators, all intended to complement each other and provide new angles from which to view the “big picture” that can help him find the genes that influence anxiety and depression.

The big picture Rogers is creating involves genetic studies of three key elements – behavior, biochemistry and the structural anatomy of the brain – that he says form a “research triangle” that can help him better understand the contributors to anxious behavior.

He is studying these key elements in the SFBR baboon colony, not because any of the baboons have anxiety disorders, but because these animals are so similar to humans in genetics, physiology and behavior, and “the Foundation’s pedigreed baboon colony allows for powerful genetic studies that cannot be done anywhere else in the world,” he says.

Besides having followed the animals’ familial and health histories and taken genetic samples of the animals for up to six generations, SFBR scientists have access to the baboon gene map they published in 2000. “That linkage map identifies landmarks, or markers, along each of the chromosomes where baboons carry slightly different DNA sequences. Testing individual baboons for these markers allows us to trace the inheritance of specific segments of a chromosome through multi-generational families – essentially telling us who got what from which grandmother or grandfather,” says Rogers. “That tool can then be used to locate on the chromosome the position of the gene we’re searching for, whether that gene influences serotonin or maternal behavior or cholesterol levels or any other identified trait.”

Building the research triangle: a look at behavior

The construction of Rogers’ research triangle began with studies of the baboons’ behavior and temperament. The collaborative team of fellow SFBR researcher Dr. Linda Brent and her research assistants; Dr. Jay Kaplan of Wake Forest University in Winston-Salem, N.C.; Dr. Anthony Comuzzie from SFBR; and veterinarians and veterinary technicians in SFBR’s Department of



Comparative Medicine, began by recording the animals' behavior during a series of mildly stressful situations. This involved taking the animals out of their social group and placing them in a new environment for a short time while exposing them to a series of unfamiliar children's toys such as a small plastic truck, train, polar bear or mirror. Some animals were curious and quickly went to "check out" a new toy. Others were timid and withdrew from it, while others turned their back and tried to ignore it. Still others acted aggressively, perhaps by slapping the toy.

"We wanted to look at the responses of adult baboons to mildly stressful situations because we think the underlying genetic variation in their response to these events may tell us something about the underlying genetics of human response to stressful events," Rogers explains. "If we can understand what genes predispose baboons not to cope well with this type of mild stress, we hope that will give us clues about genetic factors that influence anxiety disorders in humans."

In fact, Rogers, Brent and Comuzzie did find strong evidence for the role of genetic differences in controlling the differences in behavioral responses among animals.

The triangle's second arm: neurochemistry

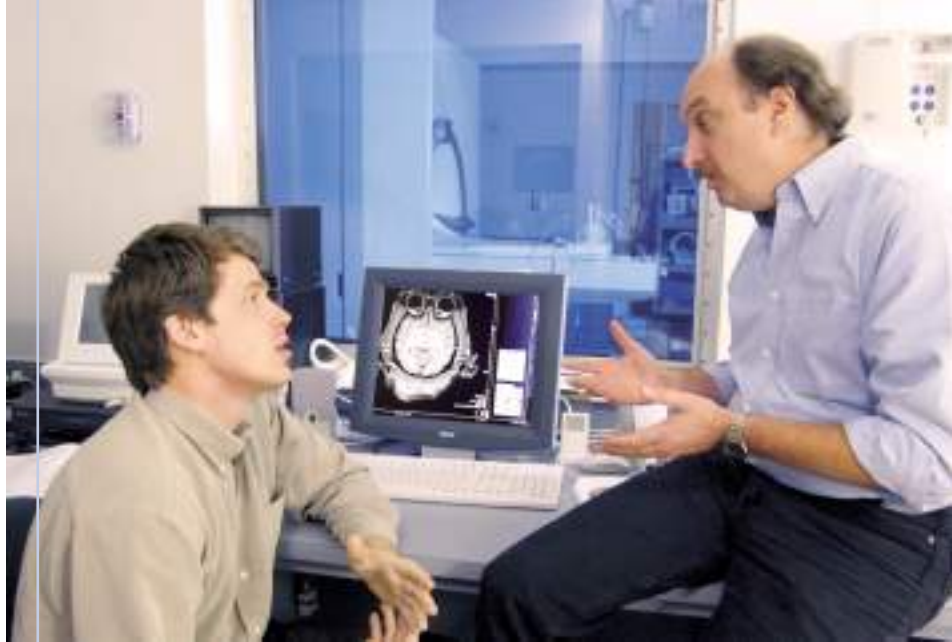
In parallel with these behavioral observations, the researchers looked for a link between the animals' temperament and neurochemistry. Tests of the baboons' cerebral spinal fluid, performed by Dr. John Mann of Columbia University, revealed that the animals have varying levels of serotonin and dopamine, two neurotransmitters that are known to be involved in depression in humans. Previous analyses in humans demonstrate a direct correlation between the levels of these neurotransmitters in the brain and specific aspects of behavior and temperament.

So now, in addition to searching for genes that directly influence behavior, Rogers is able to look for genes that influence the levels of particular neurotransmitters that may play a role in those behavioral tendencies. Those neurotransmitters produced by specialized cells in the brain may be the intermediate link between the DNA of the baboons and the behavior expressed by the animals toward the toys.

Completing the triangle: brain-imaging studies

The third phase of Rogers' study is currently being conducted with Drs. Peter Fox and Peter Kochunov at the Research Imaging Center at the University of Texas Health Science Center at San Antonio. Using magnetic resonance imaging, commonly known as MRIs, they are looking at the structural anatomy of the baboons' brains. Once these scans are complete, they will look for structural differences in the brain that correlate with the animals' varying behavior.

Rogers asks, "Are the same genes that influence behavior also influencing neurotransmitter levels? And are those same genes influencing brain structure? Or are different genes



As part of his "research triangle" on the genetics of anxiety and depressive behaviors, Dr. Jeff Rogers (right) collaborates with doctors at the Research Imaging Center at the University of Texas Health Science Center at San Antonio to conduct brain-imaging studies with baboons. Here Rogers and Dr. Peter Kochunov (left) discuss the results of one of the brain scans.

affecting each?" These questions will be the focus of continued research, and they cannot be investigated without all three types of information on the same individuals, something that would be difficult to accomplish in studies using human subjects. This three-part dataset will be unique among studies in this field of research.

"You can imagine that there are many factors that influence the behavioral response of animals, so when you're trying to look at individual variation and trace it back to a particular gene, it helps to have different sets of information, different ways of looking at the effects of that gene. This gives you significant added power to ultimately find the gene or genes responsible for influencing behavior in baboons," says Rogers.

Ultimately, that knowledge could lead to a whole new understanding of why the same stresses can affect different people differently, and to new treatments to benefit the millions of people for whom abnormal anxiety or depression is an all-too-normal part of life.

Various aspects of Dr. Jeff Rogers' research program are being funded by the National Institute of Mental Health and a pilot study grant from the Southwest National Primate Research Center. This work has also benefited from support by the Southwest Foundation Forum. On a similar note, he is collaborating with Dr. Judy Cameron at the University of Pittsburgh and the Oregon National Primate Research Center to study the genetics of anxious and depressive behavior in rhesus monkeys. Besides assisting with behavioral studies similar to the temperament studies conducted with SFBR baboons, Rogers' laboratory has been working with the Oregon primate center to create a pedigreed colony of rhesus monkeys there similar to the pedigreed baboon colony at SFBR. Through paternity tests and genotyping, he and his laboratory staff have linked 900 of the Oregon center's rhesus monkeys into large pedigreed family groups. Rogers and his staff at SFBR also are working to create a rhesus monkey gene map, as SFBR already has for the baboon, which would be highly beneficial to this and numerous other investigations.

Under Dr. Ledford's watch, SFBR has made great



Two major new facilities added to the SFBR campus during Dr. Ledford's tenure include the Betty Slick and Lewis J. Moorman Jr. Laboratory Complex (left) and the SBC Genomics Computing Center (right).

Honoring Dr. Frank F. Ledford Jr.

SFBR president has advanced human health through a lifetime commitment to medicine



He went from serving as the U.S. Army's Surgeon General to 12 years at the helm of one of the nation's leading independent biomedical research organizations, and now Lt. Gen. Frank F. Ledford Jr., M.D., plans to begin the next important phase in his life: active retirement. After leading Southwest Foundation for Biomedical Research through more than a decade of remarkable growth and achievement, Dr. Ledford is stepping down as the institution's president.

strides in a major effort to modernize its campus.



Reflecting on the Foundation's progress under Dr. Ledford's leadership, SFBR Chairman John C. Kerr listed a long string of impressive accomplishments, including growth in the Foundation's operating budget from less than \$20 million when Dr. Ledford arrived in 1992 to nearly \$50 million today, a near tripling of the Foundation's net assets during the same time period, and impressive productivity by SFBR scientists, who are responsible for an increase in annual grant and contract income from \$14.6 million in 1991 to \$42.6 million in 2003.

"With the successful completion of two major capital campaigns, SFBR also has made great strides in a major effort to modernize its campus, including the addition of some important new facilities," said Mr. Kerr. "The SBC Genomics Computing Center opened its doors in 2003, giving SFBR a spectacular facility to properly house the world's largest computing cluster devoted to statistical genetics. That followed the construction of a state-of-the-art virology complex in 1999 that gave SFBR the nation's only privately owned biosafety level four, maximum containment laboratory. During Dr. Ledford's tenure, the Foundation also was designated as one of the premier National Primate Research Centers by the National Institutes of Health. These extraordinary resources have enabled our scientists to achieve great success conducting world-class biomedical research for the betterment of human health. I believe Dr. Ledford has positioned SFBR to make even greater strides in the future."

Dr. Ledford recently made time to sit down with the *Progress* editor and reflect on his tenure at SFBR, his impressive 34-year career with the U.S. Army that preceded it, and his plans for his own future. Part of that conversation is printed here for our readers:

Continued on page 8





During his 34 years with the U.S. Army, the young Major Frank Ledford (left) who served as an orthopedic surgeon and chief of surgery at a field hospital in Vietnam eventually rose to the post of

Army Surgeon General under Presidents Ronald Reagan and George H. Bush. In 1992, he came to serve as president of SFBR, leading it through 12 years of unprecedented growth and achievement.

Dr. Ledford, continued from page 7

The list of the Foundation's accomplishments under your leadership is quite impressive. What has enabled such outstanding progress in a relatively short period of time?

I attribute this success to a wonderful combination of strengths the Foundation enjoys: the backing of the best Board of Trustees in the Southwest; what is probably the most productive group of scientists in the country; a skilled and hardworking professional development staff; good, strong management by the administrative staff; a revitalized effort to share our story with the community and include them in our mission; and truly outstanding community support. That community support has been critical, since philanthropy is what enables our success.

In which of the Foundation's accomplishments do you take the most personal pride?

I take pride in all of them, but I personally had the most to do with the capital campaign and the campus renovation effort. When I came here 12 years ago, I must admit, there was disappointment over our aging campus, which offered scientists buildings that were constructed back in the 1950s. But together, the Board of Trustees and then-Chairman Tim Hixon, other Foundation staff and I developed a modernization plan that was staged over a period of years to renovate or replace nearly all of our laboratories so that our scientists would have state-of-the-art facilities that could better enable their research. And we're on schedule with that plan.

Soon, we will have completed more than \$50 million worth of work on this campus, and we will have more than completed what we envisioned when we first developed our campus modernization plan back in 1995. I'm grateful to the many donors who supported the two major capital campaigns that have allowed us to carry out those plans.

How well poised do you believe SFBR is for the future?

I believe the Foundation has a very bright future ahead. Besides a new president who will bring new energy and enthusiasm, SFBR already has the fine oversight of a great Board of Trustees, led by John Kerr, for whom I have the sincerest admiration. And soon SFBR will have a new scientific director, Dr. Philip LoVerde, coming on board. The scientists and I already have been working with him, and I see that he has a clear vision for what we can achieve in the future, as well as the leadership skills to help us help us get where we need to be. Additionally, we have so many innovative programs underway and new ones set to come online. So I'm convinced that, scientifically, we're poised for the next level of excellence.

Before joining SFBR, you served for 34 years with the U.S. Army. That distinguished career culminated with a four-year term as the Army's Surgeon General, which also gave you the ultimate responsibility for the Army's medical response to Operation Desert Shield and Operation Desert Storm, the first Gulf War. What unique challenges did that present?

The first Gulf War involved the most rapid major mobilization of U.S. military forces in history, and preparation for it was the single most difficult thing that my staff and I did during the period I served as Surgeon General. We started preparations two days after Saddam Hussein went across the Kuwaiti border. Over the next six months, we put 44 Army hospitals, 13,500 hospital beds, and 25,000 Army medical personnel in the desert. We also increased our medical presence in Europe and beefed it up here in the United States.

The speed this required was one of the greatest challenges, and everything was made more difficult in an extraordinarily hot, arid, sandy desert, where normal



SFBR trustees salute Dr. Ledford:

“I feel very fortunate to have worked closely with Frank Ledford, particularly over the past four years that I’ve served as chairman. Not only have I have enjoyed the personal interaction with him, but I’ve developed a great admiration for him as I’ve watched him handle difficult situations and challenges with great tact, patience and wisdom.”

– John C. Kerr, SFBR Chairman

“Dr. Ledford has done a tremendous job in managing the Foundation’s affairs. He is an outstanding professional and an outstanding person, and I think we’ve been very fortunate to have had him at the Foundation’s helm for the past 12 years.”– J. Burleson Smith, SFBR Trustee Emeritus

“The smartest thing I ever did while I served as SFBR chairman was hiring Frank Ledford. He’s taken the Foundation to a higher level, both financially and in the quality of research conducted there. He’s done an excellent job, and he will be sorely missed.”

– George C. “Tim” Hixon,
SFBR Trustee and Former Chairman

“From the perspective of the Southwest Foundation for Biomedical Research, Frank Ledford has been the right man at the right place at the right time. His calm and thoughtful approach has been invaluable as we faced the challenges of managing rapidly increasing research budgets while modernizing our campus and strengthening our financial future.”

– J.R. Hurd, SFBR Trustee

“I had the privilege of knowing Dr. Ledford while he was Lt. Gen. Frank Ledford, Surgeon General of the Army. Not only did he impress me personally, but I was able to see the high regard in which he was held by his peers in Washington, D.C. We [at SFBR] were lucky that, when it came time for him to retire from the military, the general had a daughter attending medical school in San Antonio to help us lure him to the Foundation. I am grateful that he did come and that I had the good fortune to retain the friendship of a man for whom I have great respect and who has led the Foundation to outstanding achievement. He will be missed, but we are blessed that he will continue to make San Antonio his home. I know I will continue to enjoy his friendship.”

– Louis Stumberg Sr., SFBR Trustee

equipment would die. Fortunately, we had already been working on and had an approved design for a new type of expandable hospital that is still considered state-of-the-art today, called DEPMEDS, for Deployable Medical Systems. This was a new family of integrated hospital sets that had expandable, beautiful operating suites. They were actually in containers that were 20 feet long by 8 feet wide. They had their air-conditioning systems, power systems, and equipment all with them, so when you opened one of these things up, you had operating tables, scrub sinks, anesthesia machines, the works. And the air-conditioning systems were filtered and very powerful, enabling them to withstand the heat and the sand. Having this design already approved allowed us to build so many in such a short period of time, get them overseas, and have them in place in time to serve our soldiers. Fortunately, although we planned for the worst-case scenario, what actually transpired was the best-case scenario one can have in a war.

Do your most significant achievements as Surgeon General relate to the Gulf War?

They’re certainly at the top of the list, but not the only things I was able to accomplish. For example, I am very pleased that I was able to get a marvelous new hospital approved for Fort Bragg, North Carolina, one of the country’s most critical military bases. Its benefit hits close to home now because, although I could never have foreseen this, today I have family stationed at Fort Bragg and working in that new hospital. My daughter, Cheryl, followed in her father’s footsteps and became an Army orthopedic surgeon, and her husband, Michael, is also an Army physician.

Continued on page 10



In his retirement, Dr. Ledford looks forward to spending more time at his piano and traveling with his wife, Marilyn.

Dr. Ledford, continued from page 9

The things you're describing don't typically come to mind when someone thinks about the duties of a Surgeon General.

You're right. I wasn't the anti-smoking Surgeon General, but he was a good friend of mine. That was Dr. C. Everett Koop, who was the U.S. Surgeon General when I first started as the Army Surgeon General. He's the one whose warnings are on cigarette packages. Most people in the United States don't realize that we have, at any one time, four Surgeons General. There is the Surgeon General of the Public Health Service, the nation's Surgeon General, whose job is to advise the administration and public on matters of public health. Then the other Surgeons General are all career military officers in the Army, Navy and Air Force. These individuals are essentially in charge of all medical policy and command most of the medical personnel in their division of the military.

We've been focusing on your stint as Surgeon General, but you spent 30 distinguished years in the military before taking that position. That career includes too many assignments to list them all, but over the years you served in such positions as chief of surgery for an evacuation hospital in Vietnam during that war, as the Army's chief of graduate medical education and its chief of medical corps affairs, and as commander of Letterman Army Medical Center in San Francisco, of the 7th Medical Command in Europe, and of U.S. Army Medical Activity at Fort Benning, Georgia and at Fort Riley, Kansas. Looking back, what did you enjoy most about that career?

I liked the flexibility, the chance to do something different, the chance to move and see the rest of the world — which my wife, Marilyn, and I certainly did. We moved 26 times in 34 years. But I feel fortunate that I got the chance to do something most other doctors don't. I was able to practice medicine for a number of years as an orthopedic surgeon, which I really enjoyed, and then I got to practice medicine in a way that impacted people not one-on-one, but one-on-hundreds.

Has your time at SFBR allowed you to do the same thing?

Yes. This is really an extension of what I did before. My whole life has been in the medical business, and the work we do at SFBR is the basis of all medicine. Biomedical research is where the action starts, and its findings ultimately benefit people all over the world.

What are your plans now for your retirement?

I have a relatively new, seven-foot Steinway piano, which I know how to play, and I'm going to do my best to deserve it. Right now, the piano is better than I am. So I'm looking forward to the chance to practice at it a lot more, but not to the point of driving my wife crazy. Marilyn and I also want to travel. We've lived in so many places, and it would be fun to revisit some of them. Of course, we'll be traveling to North Carolina to see our daughter and son-in-law at Fort Bragg, and as Army physicians, they're certain to have a number of transfers. I remember how Marilyn's mother always came and helped us hang curtains and make new ones when we moved. So I fully expect that Cheryl would like to have her dad help drive the U-Haul truck. In fact, I've already done that for her once.

Marilyn has been so supportive of your roles with the Army and with SFBR. Will she get you involved in some of her own projects now, such as her leadership role in getting a new park built in your neighborhood?

Yes, Marilyn is extremely busy with a number of civic efforts, and she enlists my assistance sometimes. I will probably remain on a few non-profit boards myself.

You've done so much over the course of two careers. What would you most like people to remember about the service and leadership you've offered?

That I was an honest man who gave them everything I could.



Studies by Shalini Nair (left), Dr. Tim Anderson and collaborators overseas show that highly drug-resistant malaria parasites have jumped continents.

New explanation for the **intercontinental spread of drug-resistant malaria**



An article featured in the Aug. 20, 2004 issue of the journal *Science* – co-authored by two scientists at the Southwest Foundation for Biomedical Research – provides an entirely new understanding of how drug resistance to malaria is spreading around the globe. The researchers' findings indicate that Africa's increasing incidence of drug-resistant malaria resulted from mutant parasites transported from Asia.

This evidence is contrary to the common presumption that new genetic mutations in the malaria parasite occur repeatedly in malaria-affected regions of the world, showing instead that these genetic mutations are rare; when they have

occurred, the drug-resistant parasites have been exported from one region or continent to another. The consequence has been a rapid spread of resistance to low-cost drug treatments and a rise in malaria's death toll.

The researchers say people's global mobility makes the further spread of mutant parasites likely, and they recommend a united international effort to prevent this from happening with malaria and other diseases.

The good news and the bad

The *Science* article, "Intercontinental Spread of Pyrimethamine-Resistant Malaria," explains findings that a triple-mutant, highly drug-resistant malaria parasite that originated at a single point in Southeast Asia is the same strain spreading through Africa.

"The good news about this is that, rather than evolving very frequently, as previously thought, there have been very few origins of highly resistant malaria parasites. The bad news is that we have ready-made resistant parasites moving in and basically invading other continents," said Dr. Tim Anderson, a scientist in the SFBR Department of Genetics. He and his assistant Shalini Nair co-authored the *Science* article along with lead author Dr. Cally Roper at the London School of Hygiene and Tropical Medicine and other collaborators from Africa and Thailand.

Malaria, a serious and sometimes fatal disease caused by a mosquito-borne parasite, infects an estimated 300 million to 500 million people per year and causes 1.5 million to 2.7 million deaths annually. Between 10,000 and 30,000 cases of

Continued on page 12

malaria per year are reported in industrialized countries, including about 1,200 annual cases in the United States, mostly in immigrants and travelers returning from malaria-risk areas. Malaria also is one of the biggest disease risks facing U.S. soldiers overseas. Among U.S. troops sent to Somalia, 278 cases were reported – about 29 percent of the total deployment. Because of this disease threat, resistance to antimalarial drugs is a major concern for the Army.

The path of discovery

Resistance to the antimalarial drug sulfadoxine pyrimethamine (SP), sold under the trade name Fansidar™ (Roche), arises as mutations occur around a specific gene in the malaria parasite's genome. One or two mutations lead to low-level drug resistance. Three or four mutations cause high-level resistance and “really signal the end of the useful life of this drug,” said Dr. Anderson. In Southeast Asia, malaria parasites have up to four genetic mutations. Africa now has parasites with up to three mutations.

In 2003, Nair and Anderson published results from their DNA-fingerprinting tests which revealed that all the drug resistance caused by mutant malaria parasites in five countries of Southeast Asia could be traced to a single origin. “The study covered 11 populations across 2,000 kilometers,” said Nair, “and its findings were contrary to what we all believed about how resistance to antimalarials has spread.”

While Nair and Anderson were studying parasites in Asia, Roper and her colleagues were conducting a similar study in a southeastern region of Africa. A paper she published in 2003 demonstrated comparable findings, that the mutant parasites in a 4,000-square-kilometer region of Africa also had a single origin.

After the 2003 publications, the Anderson and Roper laboratories compared their findings and discovered that the mutant parasites in Africa had the same fingerprint as the ones in Asia, indicating that they did not appear there on their own, but instead jumped continents. That also appears to be the reason why resistance to antimalarial drugs has spread from one continent to another. Resistance to chloroquine first appeared in Southeast Asia in the late 1950s, then appeared in Africa in 1977 and began spreading there quickly. Likewise, resistance to SP, or Fansidar™, first appeared in Southeast Asia in the late 1970s and spread throughout the region by the mid-1980s, the same time it first appeared in Africa. In recent years, it has spread throughout Africa, causing a public health crisis.

Options for the future

Mefloquine and quinine are still available as treatment options, but resistance to these drugs already has been recorded, and they sometimes cause adverse side effects. Combination therapy also is touted as a more effective way to treat malaria, particularly when the therapy includes a Chinese herbal medication, artemisinin. No clinical resistance has yet been reported for artemisinin, and combining this drug with other available therapies may improve cure rates of resistant



Dr. Tim Anderson retrieves cryopreserved malaria parasites for investigation in his laboratory.

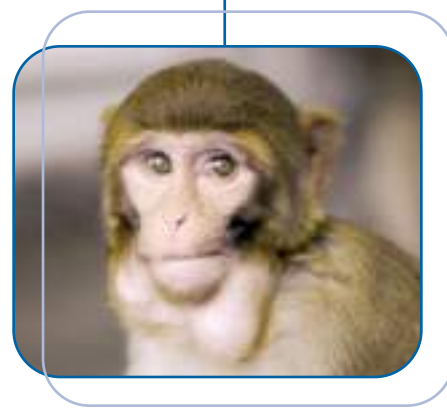
infections and reduce the spread of resistant parasites.

The problem for African countries is that mefloquine treatment costs about \$5 per treatment, and combination therapy can cost \$2 - \$3 per treatment, compared to chloroquine's and SP's cost of about 15 cents per dose. “In Africa, where the entire public health budget in some countries is less than \$5 per person per year, such a cost increase is quite significant,” Anderson said. “When you consider that in many places in sub-Saharan Africa just about every person will have at least one clinical malarial attack each year, you can see how treatment for malaria alone would eat up much of a country's annual health budget.”

Now Anderson asks, “What is going to happen when the parasite with four mutations jumps from Asia to Africa, as we can be sure it will given the mobility of people in today's world?” That is why he and his colleagues recommend a united international effort to limit the further movement and spread of malaria and other diseases.

Record grant to primate center enables the

development of new resources



A five-year, \$27.9 million grant renewal for the Southwest National Primate Research Center (SNPRC) — the largest grant ever received by SFBR — will enable the development of new scientific resources at the center and enhance its ability to serve as a national resource.

Among other new initiatives being funded by the grant, the center will now be able to develop a national primate genomics database as well as primate research models for tuberculosis and metabolic syndrome, a precursor to cardiovascular disease, diabetes and obesity.

A \$9 million increase over the first five years of funding for the SNPRC, the grant renewal was awarded this summer by the National Center for Research Resources (NCRR), a component of the National Institutes of Health, which established the primate center at SFBR in 1999. That designation made the SNPRC the country's eighth national primate research center and the first new primate center to be established since the original seven were created in the 1960s.

Dr. Judith L. Vaitukaitis, director of NCRR, said she was

pleased to be able to award the SNPRC a significant grant increase because “the primate centers are a critical national resource, and they’re playing a progressively expanding role in a number of important research efforts.”

Dr. Vaitukaitis said the SNPRC has significantly enhanced the primate center program. “With its outstanding genetics program and its unique development of the baboon as a biomedical research model for human disease, the Southwest National Primate Research Center offers expertise that is not readily available at the other seven centers, so it is a good complement to the primate center program as a whole.”

Primate center strengths and accomplishments

Dr. John VandeBerg, director of the SNPRC, noted that the center has the world's largest baboon colony for biomedical research and the largest colony of any primate species that is pedigreed, as well as the world's largest genetic research program with nonhuman primates. These resources enabled SFBR scientists to publish the baboon gene map in 2000, still the only gene map of any nonhuman primate. It serves as a powerful tool in scientists' efforts to identify genes that influence disease susceptibility in both baboons and humans.

Dr. VandeBerg expressed his gratitude to the NIH for its recognition of the primate center's success and support of its further development. “I believe the significant grant increase they have awarded us reflects the recognition of NIH for what we've done and what we're poised to do,” he said.

In its first five years of operation, the SNPRC collaborated with 267 investigators in 27 states

SFBR baboons, particularly those in the Foundation's unique pedigreed colony, already serve as an important national resource for biomedical research.



Continued on page 14

targeting advances in the areas of cardiovascular disease, infectious disease, maternal and child health, vision and eye health, aging, mental health, and addictive disorders.

Grant objectives and new initiatives

Now, at a higher level of funding, the SNPRC plans to develop new resources and programs that further fulfill its mission and lead to even more collaborations to discover new preventions and treatments for disease.

In general, the primate center base grant is designated for the following purposes: infrastructure, including administrative support, physical plant infrastructure, technical resources, and education and outreach; research projects aimed at enhancing and developing new primate resources; and pilot studies, which provide preliminary data necessary to justify novel research programs and leverage larger research grants.

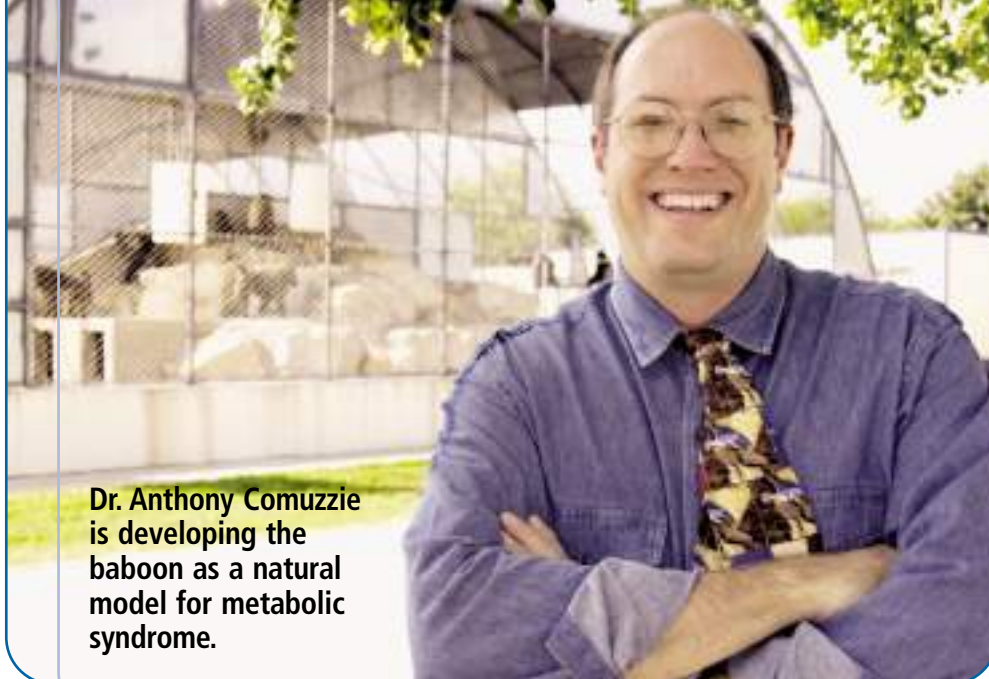
New SNPRC projects funded through the grant focus on a variety of initiatives:

Primate model for tuberculosis. The SNPRC plans to develop a primate model for tuberculosis, creating a valuable new resource for research on new treatments and potential vaccines. One waiting to be tested is a novel preventive and therapeutic vaccine designed by Dr. Celio Lopes Silva at the Brazilian Tuberculosis Research Center. As Dr. VandeBerg explained, “This vaccine possibly could be used to prevent infection as well as to stimulate immune response in someone after they’ve been infected.”

Tuberculosis, an infectious lung disease spread person-to-person through the air, infected nearly 15,000 people in the United States in 2003, according to the Centers for Disease Control and Prevention. There currently is no TB vaccine, and treatment requires that patients take a combination of several drugs for six to 12 months to prevent the spread of drug-resistant infections.

Primate model for metabolic syndrome. Dr. Anthony Comuzzie will lead another new project to develop the baboon as a natural model for metabolic syndrome, which refers to alterations in certain metabolic characteristics that ultimately may give rise to obesity, diabetes and cardiovascular disease.

Dr. Comuzzie explained that metabolic syndrome is characterized by having abnormal HDL and LDL cholesterol levels, high blood pressure,



Dr. Anthony Comuzzie is developing the baboon as a natural model for metabolic syndrome.

increased waist circumference, and abnormal glucose levels. “These conditions, which tend to cluster within individuals, are not diseases themselves, but they are all part of the diagnosis of heart disease, diabetes and obesity, and they put people at greater risk for these diseases,” he said.

He said a new study on metabolic syndrome will be a good complement to SFBR’s ongoing research into all three of these diseases. “By the time an individual has heart disease or diabetes, it’s too late to do anything but try to manage the problem,” said Dr. Comuzzie. “So it would be very useful to have a better understanding of the predictors of disease risk and what happens genetically or physiologically or through environmental influence to increase those risk factors and eventually lead to the onset of disease. That way, we will be better equipped to intervene before disease starts.”

The chacma baboon as a new genetic resource. In a separate project, Dr. Jeff Rogers will lead an initiative to develop chacma baboons as a new genetic resource. The center already has a one-of-a-kind pedigreed colony of olive baboons, which plays an important role in a wide variety of genetic studies. Rogers will conduct investigations to identify genetic differences between the two sub-species and determine whether studies with olive baboons, chacma

baboons and a hybrid of the two would assist scientists in their hunt for genes that influence the animals’ varying degrees of disease susceptibility.

“We search for disease-influencing genes by looking at genetic differences between people and between animals,” explained Dr. Rogers. “In order for us to detect the effect of a particular gene, it must be variable in the population, meaning different people or different animals have to have different forms of that gene. Then we can look and see whether the inherited differences in that gene influence any particular trait, such as cholesterol levels or bone density, for instance. If a gene has no variation in the population, it might contribute to a disease process, but it’s very difficult for us to detect its influence.”

He continued, “Already we have an



Dr. John VandeBerg, director of the SNPRC

outstanding resource in our pedigreed colony of olive baboons, which helps us find disease-influencing genes that are variable in that population. But there may be genes that are not variable in olive baboons that still influence different physical traits. That is why we're developing a colony of chacma baboons, which are quite similar to olive baboons but genetically distinct. There might be genes that are variable among the chacmas that are not variable in the olive baboons, and by looking at those differences, we'll be better able to detect the effect of genes that influence health and disease."

Model for aging research. The SNPRC also has plans to develop a breeding colony of marmoset monkeys as a resource for a variety of potential research projects, including work in neuroscience, biodefense, infectious diseases, and fetal programming, also described as fetal origins of adult disease. The marmoset already is being developed by Dr. Suzette Tardif as an animal model for aging research.

"As the smallest monkey species, marmosets also have the shortest lifespan of any primate, considered aged at eight or nine years," she said. "This makes the animals ideally suited for studies on the natural processes of aging."

Dr. Tardif currently is designing such studies in collaboration with the University of Texas Health Science Center at San Antonio and the University of Texas at San Antonio.

She says that marmosets are expected to be a valuable primate model for these and

many other research initiatives because "their small body size and short lifespan make them easier to work with and allow you to do some types of research that would be much more difficult in other primates."

Primate genomics database. Another truly national resource to be developed by Dr. Michael Mahaney is a primate genomics database. To be created and maintained at SFBR, the database will provide researchers around the country with quick and easy access to comprehensive and up-to-date genomic and genetic information gathered on all species of primates.

"The need for this is enormous," said Dr. VandeBerg. "With the explosion and success of this research field in recent years, it has become an impossible task for individual investigators to keep up with the rapid addition of information being derived from the various primate species."

"We will begin with the results of our own research, which already include an enormous amount of information about the genetics and genomics of baboons," said Dr. Mahaney. "When you combine that with the information Drs. Jeff Rogers and Laura Cox are gathering as they work to map the rhesus genome, it is impossible for individuals to keep informed on

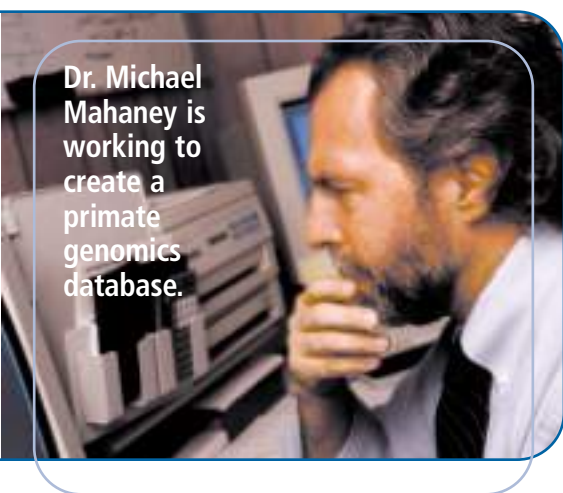


A new breeding colony of marmoset monkeys will support a variety of research initiatives, including Dr. Suzette Tardif's investigations on health issues related to aging.

our data alone. We need a way to communicate that information with our colleagues here and around the world, and this database will help us do that. From there, it is a natural next step to add to the database information that has been garnered by researchers at other institutions. That will make all of this genetic and genomic data more valuable and help advance national and global efforts to find genes influencing disease."

Dr. Mahaney added that he is working with other institutions that maintain databases on the rat and mouse genomes to ensure that SFBR's primate genomics database is comparable. "We're collaborating with these other organizations so that we can make our database similar to other mammalian databases that already exist. The reason is that, ultimately, our grand goal is to allow comparative genomics work to be done by people who can, in one swoop, compare species as divergent as the rat, mouse, baboon, rhesus, and human all at the same time."

Dr. Frank F. Ledford Jr., president of SFBR and officially the grant's principal investigator, lauded the effort and dedication of SFBR scientists working on these initiatives and thanked the NIH for its outstanding support. "We are collaborating with scientists and institutions throughout the nation and around the globe to discover the causes and cures for many diseases, and this grant provides for resources that will give us greater success in that important mission," he said.



Dr. Michael Mahaney is working to create a primate genomics database.

In the spotlight:

SFBR Chairman John Kerr



In each issue of Progress, we highlight one of SFBR's stellar trustees. In this issue, the focus is on SFBR Chairman John C. Kerr, who is leading the Foundation through a dynamic time in its history. In this spotlight, he reflects on how far

SFBR has come and its direction for the future as he also allows our readers the chance to get to know the person behind the leader.

On occasions when you've been introduced as an attorney, you've jokingly changed that description to "recovering attorney." But like your father, you were a successful corporate attorney for many years, weren't you?

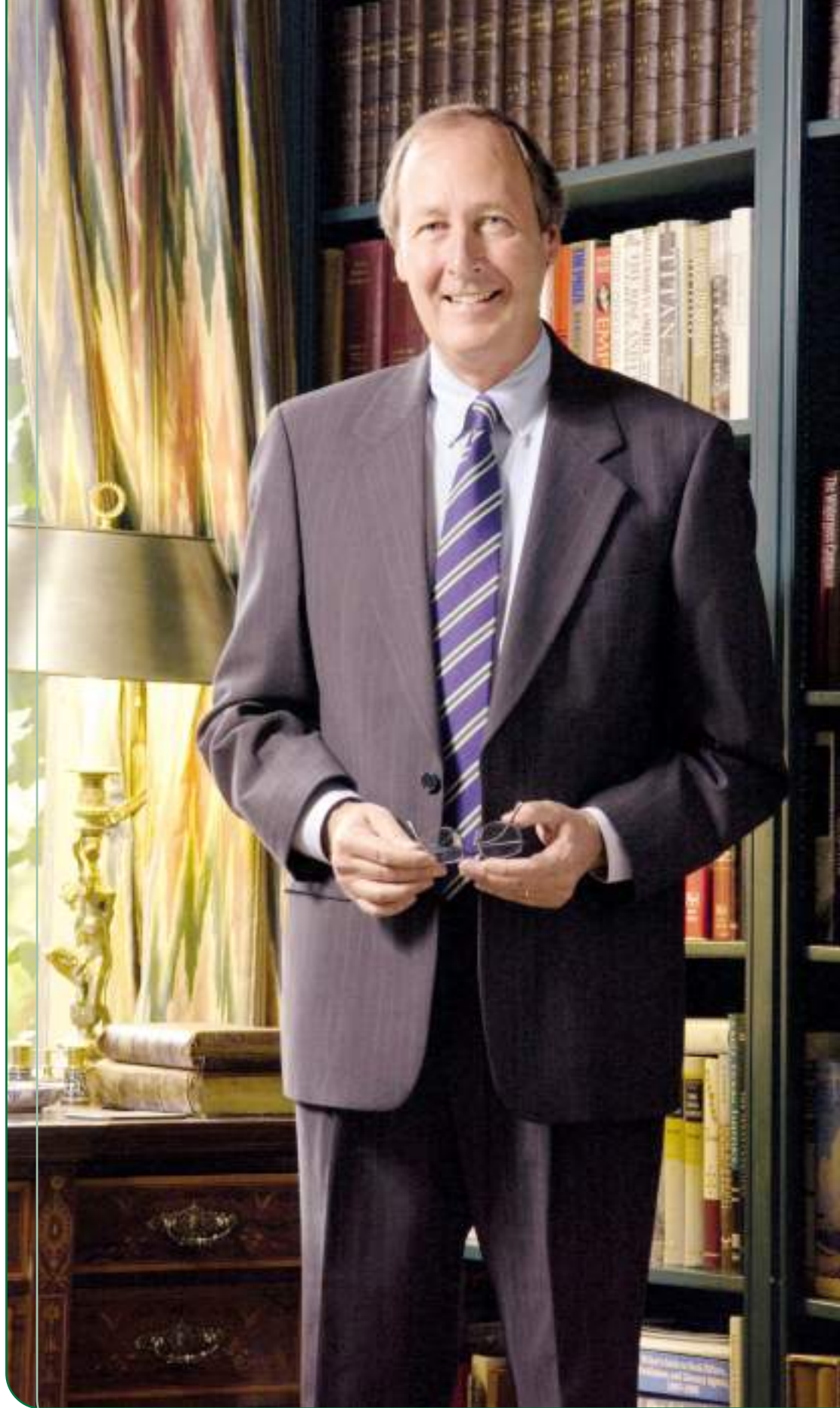
That's just a humorous way I refer to it, but I did spend the first part of my career practicing law, mainly in Houston, with one of the large firms there, Andrews & Kurth. I was quite happy as a partner and would probably still be in Houston, I think, if it weren't for a call I got out of the blue one day from Burley Smith asking me to think about moving to San Antonio to join him at Cox & Smith. My wife, Susan, and I thought about it for a year, and we were finally drawn by the opportunity to raise our family in San Antonio.

What led to an eventual career shift?

I made the decision to go to work for a client, American Century Corporation, a publicly traded real estate

investment company, where I served as CEO in the 1980s. After American Century merged with an Austin company in 1990, I decided to partner with an old friend in New York in the venture capital and investment banking business and developed an interest in raising capital for biotechnology ventures. My main business interest today is serving as chairman of Azaya Therapeutics, a company we started several years ago that is developing experimental cancer drugs and new drug-delivery technologies.

Your role as SFBR chairman consumes almost as much of



your time as your professional business. What gives you such a strong dedication to the Foundation?

From its inception, the Foundation has been very important to my wife's family, and I had a great personal interest in it long before I joined the board. When I was asked to serve as chairman, I felt that I wanted to make a major commitment, because I believe so strongly in the mission of SFBR.

Does the fact that Susan is a niece of SFBR founder Tom Slick give you a special perspective on the Foundation and its mission?

It has given me a sense of connection to Tom Slick, but my close relationship with his sister and brother-in-law, Susan's parents, as well as with Earl and Jane Slick and with Tom's grown children, has shown me the strong commitment to SFBR that has been shared by the entire Slick family for all these decades.

Certainly Tom Slick and his family understood the importance of philanthropy to SFBR. You also have been active in raising funds for the organization, particularly through your role as chair of the \$40.3 million Campaign for Southwest Foundation, which recently surpassed its goal. What does the success of the largest capital campaign in SFBR's history mean to this organization?

I believe the success of the campaign positions SFBR to move to the next level of excellence. One way it has done this is by allowing us to move forward with a major undertaking, the complete upgrade and modernization of the entire campus. Obviously all of the construction is not yet completed, but by and large, the funding for it is



In addition to his role as chairman of SFBR, John Kerr helped start and serves as chairman of Azaya Therapeutics. Here, he observes some of the company's latest research on experimental cancer drugs and drug-delivery techniques.

assured. I think that is already paying significant returns in terms of the ability to recruit and retain top-level researchers in a number of key areas, which was another focus of the campaign.

What are your thoughts on how far the Foundation has come since you became chairman?

I'd say there have been several major milestone accomplishments, for which I give the real credit to [SFBR President] Dr. Frank Ledford and his team and to the scientists, with the support of the board. Clearly the Foundation's designation by the National Institutes of Health as a National Primate Research

Center and the development of that grant are of great significance. The primate resources and expertise at SFBR were valuable assets long before that designation, but now with that designation and the NIH support that comes with it, the Foundation has a unique place in biomedical research in the United States.

Another major milestone is the complete modernization of the campus, with state-of-the-art laboratories that are being built to replace the aging facilities we had. The Moorman virology and immunology building, with its biosafety level 4 lab, is an excellent example. This leaves the Foundation in a very strong position, especially when coupled with its financial successes in recent years. The capital campaign helped us more than double our

Continued on page 18

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At left, John Kerr presents a gift to SBC officials Laura Sanford and John Montford at dedication ceremonies for the SBC Genomics Computing Center at SFBR. At right, he helps unveil progress in the \$40.3 million Campaign for Southwest Foundation during the SFBR 60th Anniversary Dinner in June 2002. Mr. Kerr chaired the capital campaign, which surpassed its goal this past spring.

John Kerr, continued from page 17

permanent endowment. The productivity of SFBR scientists and their success in attracting NIH funding has likewise led to a doubling of grant and contract revenue in the same time period. So I think the Foundation's progress has been dramatic.

You mentioned that SFBR is set to move to the next level of excellence. What do you envision that next level to be, and do you foresee any challenges in getting there?

Certainly there will be challenges, simply because SFBR works in a highly competitive environment. In addition, the NIH budget will not continue to grow the way it has in the last five to 10 years, so SFBR scientists will be applying for grants in a funding environment that is even more competitive than usual. Since Dr. Ledford is retiring, we're also undergoing a leadership change.

The new leader – along with the new scientific director who is coming on board – will be tasked with developing a strategy on where we go from here. We've developed some very strong capabilities, particularly in the areas of genetics and virology. The new leadership will be charged with deciding how to capitalize on those strengths and move forward.

I also think that, with the more competitive environment for NIH funding, one challenge will be to identify alternative sources of funding. This could come from commercial contracts, from research related to biodefense, and perhaps from the commercial development of intellectual property or technology that is developed by Foundation scientists and then transferred into the private sector for development.

Outside of SFBR, some of your major civic responsibilities include serving as chairman of the board for the Admiral Nimitz Foundation, the non-profit foundation that oversees the Nimitz Museum in Fredericksburg, Texas; former chairman of the Texas Public Finance Authority; and current board member of Mission Road Ministries, a local non-profit entity that provides residential services for mentally and developmentally disabled children and adults. Are there personal interests that drew you to a leadership role with these organizations?

Sometimes you simply respond to a request to serve, and in that service, you develop a strong connection and sense of commitment to an organization's mission. However, my involvement with the Nimitz Museum, which is exclusively devoted to the Pacific theater of World War II, does stem from my lifelong interest in history, particularly of that era, and from the fact that my father served in the Pacific during World War II.

Is your love of history, particularly related to World War II, what led to your affection for Winston Churchill? You're known to be a big admirer of his, even attending a symposium about him at the University of Texas at Austin and helping to organize a second symposium.

It's certainly an outgrowth of my general interest in reading history and biography, but I've always been fascinated with Winston Churchill. I find it especially interesting that he had only been prime minister for a matter of weeks when the Germans defeated France in June of 1940, leaving Great Britain alone against an enormously formidable adversary. Churchill was able to convince the cabinet that Britain should fight on in the face of



John Kerr at the Foundation's 60th anniversary celebration

overwhelming odds. That, to me, was an amazing accomplishment that really saved the free world.

Your family also has a close personal relationship with one of America's great political families, the Bushes. In fact, Barbara Bush makes frequent reference to your parents in two of her books: Barbara Bush: A Memoir and Reflections: Life After the White House. She describes how their long friendship began when your father, Baine Kerr Sr., helped the Bushes find a site for their new home when they were moving from Midland to Houston. As neighbors, they became fast friends, and from Barbara Bush's writing, it is evident that she is quite fond of your mother, Mildred.

Yes, the Bushes have been friends with my family since the 1950s, when I was just in grade school. My mother and Barbara Bush, in particular, are very close. In fact, the Bush's well-known dog Millie was named for my mother.

It sounds like the Kerr and Bush children are very close as well. Barbara Bush writes about things you all did together as children, whether it be putting on Christmas plays for both families or more "... hair-raising experiences, most of which ended up with trips to the emergency room for stitches."

That's right. My younger brother and Jeb are contemporaries and wound up as college roommates. My older brother and the President are almost exactly the same age, within two weeks of each other. They're just a year older than I, so I was always the younger brother that was being taken advantage of by those two.

Your friendship with President Bush has gotten you involved in the political arena, hasn't it?

When George W. Bush decided to run for governor in 1993, he asked me to serve as his county chairman for Bexar County. I had never done anything like that before, and I really enjoyed it. In those early days, he would just fly into San Antonio on Southwest Airlines, I'd pick him up at the airport, and we'd go on the campaign trail. Things are a little different now, of course. But I enjoyed that work and chaired at the county level when he ran for re-election in 1998, and I worked on his presidential campaign in 2000.

Is there anything your fellow trustees would be surprised to learn about you?

Most of my interests aren't too surprising, but they might not know that I play the acoustic guitar and piano and sing in the choir at First Presbyterian Church.



John Kerr enjoys playing acoustic guitar, which is well-suited for his interest in country, bluegrass, rock 'n' roll, and a broad range of other types of music.

What has been your most rewarding accomplishment?

I think the greatest thing in life has to be raising your children. It certainly has been for me. Ours are all grown now. The youngest, our daughter, is 23 and just started law school. She and her three older brothers all have made Susan and me very proud.

Regarding my role with SFBR, I can only say it's been a real privilege to serve with such a distinguished group of trustees and to serve in a leadership capacity for such a fine organization. I feel very blessed.



embers of the President's Circle, Corporate Circle and Golden Circle are among SFBR's closest friends and supporters. Each year, they make contributions of \$5,000, \$2,500 and \$1,000, respectively, to assist SFBR in carrying out its mission. These donations are used by the Foundation

to purchase new scientific equipment and other resources necessary to its scientists' life-saving research projects.

If you would like to join this valued group of SFBR supporters, contact Corbett Christie, SFBR's chief development officer, at (210) 258-9870. You also can learn more about the Circles of Support and join online at http://www.sfbr.org/pages/support_circle.php.

'Tis the season to be thankful

This is the time of year when we express thanks for the many blessings we enjoy: our community of friends and family, the country in which we live, health, security, and countless other things we hold dear.

It is in this spirit of thanksgiving that we express our gratitude for your support of Southwest Foundation for Biomedical Research. The pages of this news magazine detail some of the Foundation's recent progress and achievements in the scientific effort to improve human health and ultimately save lives. This progress would never be possible without the support of our many friends and benefactors.

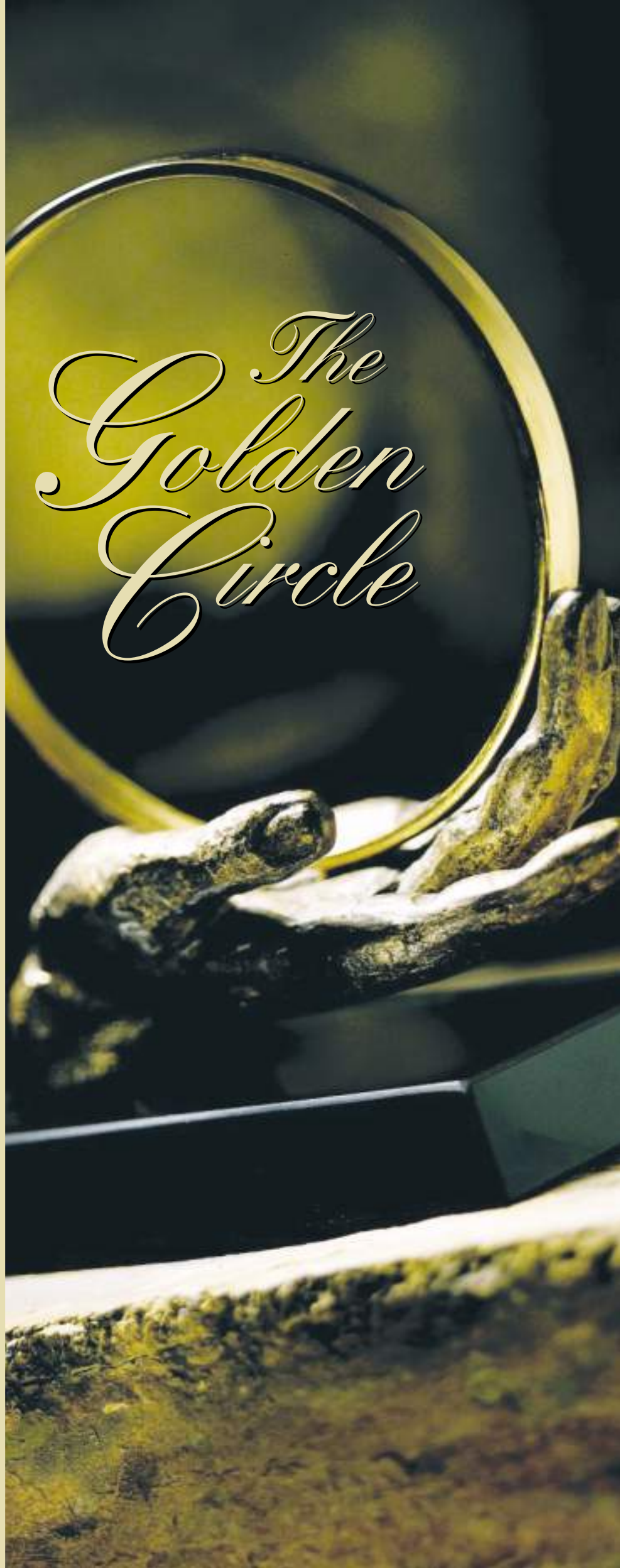
Donations have built and equipped laboratories, endowed lifesaving and life-improving research, enabled innovative pilot studies, and sponsored the recruitment of the best and brightest new faculty. Our scientists also are encouraged as they dare to dream of new medical advances and technologies to prevent, treat or cure heartbreaking diseases, seeing through your support that others share in their vision and in the mission of SFBR. In these ways, you make a difference, both for SFBR and for those who will benefit from our research.

Tennessee Williams once said, "Life is an unanswered question, but let's still believe in the dignity and importance of the question."

As long as there are still scientific questions, SFBR researchers will seek the answers, just as our founder, Tom Slick, envisioned. This vision is carried out today and is broadened because of your support. We are grateful for your investment in SFBR.

With warm regards,

B. Corbett Christie
Chief Development Officer



Golden Circle cruise celebrates **the Ledfords' contributions to SFBR**

Golden Circle members took to the seas Oct. 10-17 as a fun-filled way to celebrate the contributions of Dr. Frank F. Ledford Jr. and his wife, Marilyn, to SFBR over the past 12 years.

With Dr. Ledford making plans to retire as SFBR president, many of the Foundation's closest friends and supporters joined in a fall foliage cruise along the northeastern United States and Canada in the Ledfords' honor.

Participants set sail aboard the all-suite Radisson Seven Seas Navigator at the peak time for enjoying the vibrant colors of fall in the Northeast, following the Gulf Stream from New York to Montreal with stops in Boston, Bar Harbor, Halifax, Sydney and Quebec. When the group arrived in Bar Harbor, they were treated to a lovely cocktail brunch reception in the Ledfords' honor at a Golden Circle member's home, which overlooks Penobscot Bay.

Many thanks go to cruise hosts Marian and Norman Harwell, and to Laura Brusenhan, who did an outstanding job coordinating this beautiful trip.





Southwest Foundation Forum

Spring gala pays off with \$80,000 for new scientific research

Above: Ladies of the Southwest Foundation Forum donated \$80,000 to SFBR with proceeds from their spring gala. Here, SFBR President Dr. Frank F. Ledford Jr. accepts the donation from (L-R) Debbi Chesney, Christy Gulley, Jill Rosenthal and Lisa Sechler. Below: Guests enjoy the fabulous spring gala.



The Forum's 2004 spring gala, held at The Argyle on May 1, turned out to be more than a fabulous party. It was an \$80,000 fundraiser for new research at SFBR.

Lisa Sechler, the Forum's 2003-2004 president, along with 2004 Gala Chair Christy Gulley and Co-Chairs Jill Rosenthal and Debbi Chesney, presented those proceeds to SFBR President Dr. Frank F. Ledford Jr. at The Argyle on Sept. 13.

At the presentation, Ms. Sechler said, "It is an honor for us to partner with Southwest Foundation and to know that our gift will help advance the work of brilliant scientists who are trying to find new cures and treatments for a wide range of diseases."

In many cases, pilot studies funded by Forum grants allow scientists to gather data that eventually leads to major scientific research projects funded by the National Institutes of Health.

This year's gift is being used to fund four new initiatives:

- Dr. Andrew Hayhurst in the Department of Virology and Immunology has generated a library of synthetic human antibodies, and this grant will allow him to screen those antibodies for effectiveness against viruses that cause SARS and hemorrhagic fevers.
- Dr. Lorena Havill's new project focuses on the genetic determinants of a major risk factor for osteoporosis, osteon remodeling pattern, in the baboon model.
- Dr. Liz Tejero will initiate a project to identify the variation present in the resistin gene influencing the production of the hormone resistin in fat tissue. Resistin is associated with insulin resistance and diabetes.
- Dr. Guowen Cai and her colleagues have previously localized a gene influencing change in blood pressure over time to a region on chromosome 11. The Forum grant will now be used to help identify the specific genes that are involved in determining patterns of change in blood pressure using fine mapping techniques.

"We are extremely grateful to the ladies of the Southwest Foundation Forum, whose hard work on behalf of SFBR will ultimately benefit us all. By providing scientists with much-needed funding for novel research projects, they become true partners in scientific progress toward improved human health," Dr. Ledford said. "Hats off to them and to the numerous individuals and businesses in our community who have supported their generous efforts."

Mark your calendars now for the Forum's 2005 gala, to be held May 14 with the theme "A Medieval Knight." If you can volunteer to help with the event, contact Phyllis Viola at (210) 930-7100 or phyllisviola@sbcglobal.net.

For Forum membership information, contact Estee Kellogg at estee_kellogg@hotmail.com, or visit the Forum Web site at www.suff.org.



The Founder's Council

Active schedule features hot topics on human health

The Founder's Council has been on the move in recent months, "taking its show on the road" by hosting events at a variety of venues to showcase the breadth of research underway at SFBR.

In May, the group gathered at The Argyle for a luncheon featuring Dr. Peter Nathanielsz as the keynote speaker. An adjunct scientist at SFBR, Dr. Nathanielsz is a renowned expert on the subject of fetal programming, or the fetal origins of adult disease, and author of the popular book *The Prenatal Prescription*. He offered a lively and fascinating presentation on how children's time developing in the womb can impact their lifetime health.

Things heated up in July with a festive reception downtown at the Finesilver Gallery. The evening took on a Latin flare, complete with a flamenco guitarist and dancer, as it focused on a problem of great importance to San Antonio: the rising epidemic of obesity and diabetes. In his address to the crowd, SFBR geneticist Dr. Anthony Comuzzie described how the close connection between these two conditions led to the development of the current buzzword in research and health care circles, "diabesity." He went on to explain how our genes and our changing environment interact to influence our susceptibility to obesity, diabetes, and their common correlate, heart disease.

Still the number one killer in the United States, heart disease was the topic of the evening as members gathered Oct. 7 at a popular restaurant on the north side of San Antonio, Gladys at the Strand. Contrary to what one might expect, the speaker that evening had much to say about children's health. Dr. Henry C. McGill Jr., senior scientist emeritus at SFBR, has spent his career studying atherosclerosis, or hardening of the arteries, the major cause of heart attack and stroke.

He told the group about his most recent work, which shows that the risk factors for heart disease – high cholesterol, high blood pressure, obesity, diabetes and smoking – are associated with more rapid progression of atherosclerosis in youths and young adults, putting them at risk for the early onset of cardiovascular disease. Stressing the importance of lifestyle modification, Dr. McGill said we are never too young or too old to work at heart disease prevention.

Special thanks go to Bank of America Private Bank, San Antonio; Frost Bank; and Fisher, Herbst and Kemble, P.C., who sponsored these worthwhile events.

Do you have an interest in joining the Founder's Council? Contact Amy Abdalla at (210) 258-9409 or amy@sfbr.org, or visit the group's Web site at http://www.sfbr.org/pages/founder_council.php



Members and guests of the Founder's Council enjoyed touring the town as part of the group's active summer and fall series of events.

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 Web site, www.sfbr.org.



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