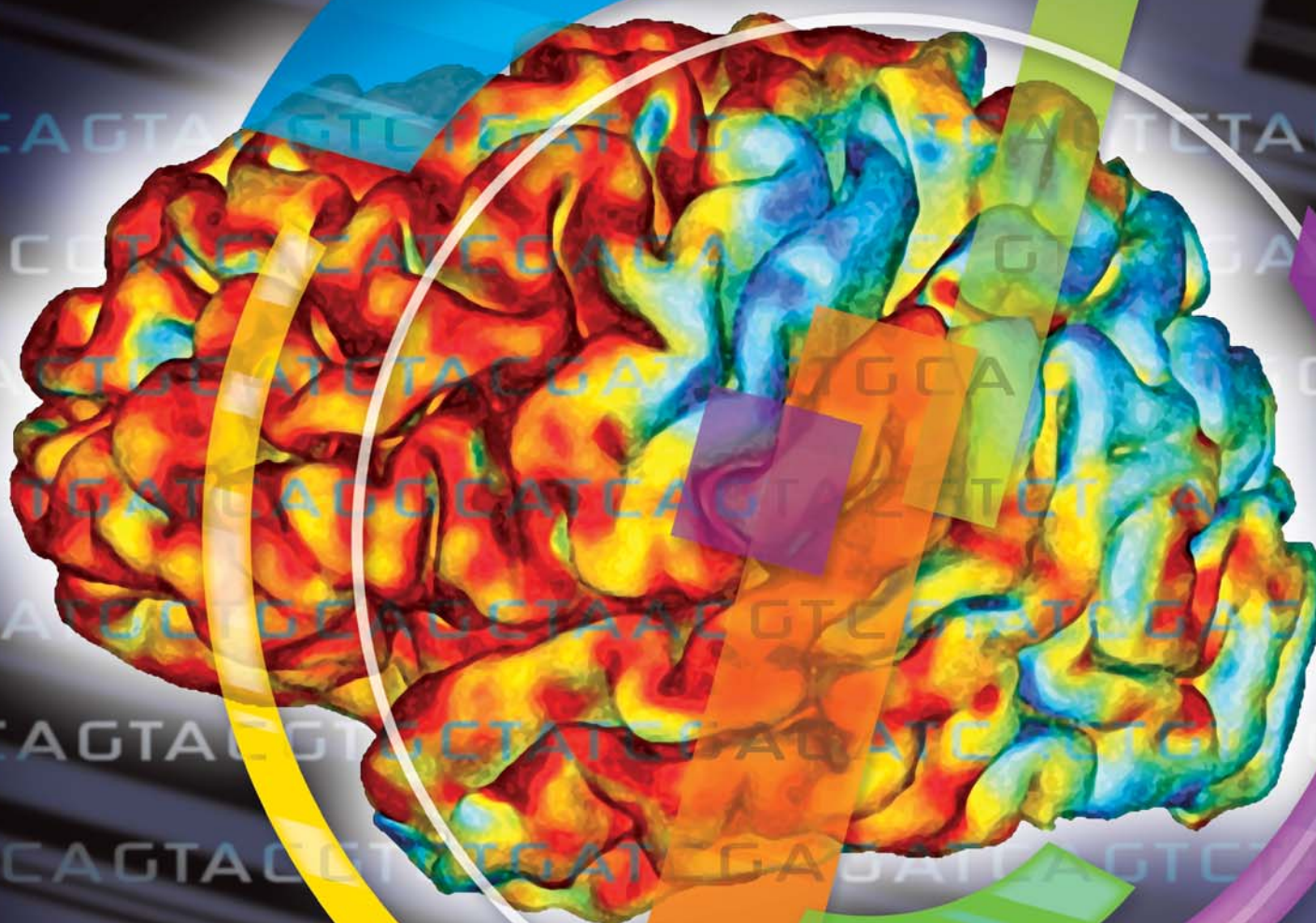


SFBR

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PROGRESS

Spring Issue 2007



Looking for genes that control the brain

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Message from the President

John C. Kerr

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It is my pleasure to introduce you to this issue of *Progress*, which I hope gives you at least a sense of the tremendous progress being made at SFBR on a daily basis. We have a great deal to celebrate in this issue.

In 2000, the Foundation embarked on a bold \$40.3 million capital campaign to build its endowment, help recruit key faculty, and move forward with an ambitious Campus Modernization Plan launched in the mid-1990s. In 2004, through the outstanding generosity of donors, we actually surpassed our goal. This has allowed us to complete the capital projects funded by the campaign and initiate plans for future campus improvements designed to keep cutting-edge research in state-of-the-art laboratories.

On March 26, friends of SFBR gathered to celebrate the success of the capital campaign by touring our newly renovated Earl Slick Center. This 21st-century laboratory complex is technologically equipped to support the modern high-throughput studies of our geneticists, while all our scientists are able to reap the benefits of its upgraded library and conference space. On behalf of everyone at SFBR, I offer my sincere appreciation to the many individuals, corporations and foundations who supported the campaign, with special thanks to Earl Slick.

Naming a major SFBR research complex in Earl Slick's honor is a small way of thanking this visionary man – brother of our founder, Tom Slick – who has been a key leader and major supporter of the Foundation throughout its history. His lead gift to our recent capital campaign is just one of many ways that he has moved us forward in our effort to improve human health through biomedical research.

In addition to articles about the Slick Center opening and a tribute to Earl Slick, this issue of *Progress* offers a closer look at some of the breakthrough research that is supported by our campus improvements.

Dr. John Blangero has teamed up with Dr. David Glahn at the University of Texas Health Science Center at San Antonio to lead a major new study of the human brain. The largest project of its kind, the study utilizes volunteers from San Antonio and the extraordinary resources and expertise of SFBR and UTHSCSA to uncover the genetic basis of normal brain structure and function. This compelling study is expected to shed light on the root causes of many brain-associated disorders ranging from Alzheimer's disease to schizophrenia, and in the process, illuminate



As you read these features, you'll receive a glimpse of the leaps in biomedical research that occur almost daily at SFBR...

new paths for their treatment.

Meanwhile, Dr. Jeff Rogers is part of a national story on the sequencing of the rhesus macaque genome. As a faculty member with our Genetics Department and our Southwest National Primate Research Center, Dr. Rogers provided valuable expertise to this collaborative project. This scientific advancement, especially when coupled with the rhesus genetic linkage map that Dr. Rogers previously developed, is expected to advance a multitude of human health studies that rely on the rhesus monkey, the most commonly used nonhuman primate model in biomedical research.

The rhesus monkey is especially important to Dr. Luis Giavedoni, an SFBR scientist who utilizes this animal model for his research on HIV and AIDS. In this issue's faculty spotlight, our readers can learn more about Dr. Giavedoni's current work developing potential AIDS vaccines, as well as his previous contributions to a successful vaccine for cattle plague.

Although cardiovascular disease is still a leading killer in the United States, Dr. Henry McGill is on a mission to change that. Dr. McGill has devoted his career to the study of atherosclerosis, the hardening of the arteries that can lead to heart attacks and strokes. He says that today we know enough to prevent 90 percent of heart attacks, but we have to commit to lifestyle changes – now. In fact, his most recent work shows the importance of beginning heart disease prevention in childhood.

As you read these features, you'll receive a glimpse of the leaps in biomedical research that occur almost daily at SFBR – and I hope you will see how important your support is to all our success stories. Thank you for joining us in the fight to improve human health.

Researchers looking for genes that control the brain

Largest study of its kind combines powerful resources to explain normal brain biology, shed light on root causes of mental illness



Although it's our most vital organ, surprisingly little is known about what constitutes a "normal" brain. That makes it harder to uncover what's gone awry in people suffering from mental illness and other brain-associated disorders, and ultimately, it often leaves physicians treating symptoms rather than causes of

conditions such as Alzheimer's and Parkinson's disease, schizophrenia, attention deficit hyperactivity disorder (ADHD), and many other ailments.

That's why researchers from SFBR and the University of Texas Health Science Center at San Antonio have combined forces for the largest study of its kind to map out normal variations in brain structure and function and identify the genes responsible for those variations. They expect their five-year investigation – funded with two new cooperative grants totaling \$7 million from the National

► *Continued on page 4*



Brain, continued from page 3

Institute of Mental Health – to yield a host of new data on basic brain biology and mental illnesses, as well as spawn additional studies focusing on specific diseases.

Why study what's "normal"?

Because scientists have not developed a good understanding of basic brain biology and the role of genes, they do not know the root causes of most mental disorders, said Dr. John Blangero, an SFBR geneticist and director of the AT&T Genomics Computing Center, who is leading the study with Dr. David Glahn, a psychologist and associate professor at UTHSCSA.

To get to the heart of the matter, Drs. Blangero and Glahn are taking a different approach from many previous studies of the brain. Rather than looking for research subjects suffering from a particular mental illness and studying differences in their brain structure and function, this research team is working with large family groups from the average population to better understand normal brain variation and the genes that control it.

"We want to inform aspects of brain biology that are relevant for a lot of different diseases," Dr. Blangero said. "That's why we're not focused on any disease. We're focused on finding the genes that influence normal brain variation. Those are going to be the same genes that also influence pathological variations."

"This gives us the potential to evolve some of the basic

questions that we're constantly dealing with from the side of neurologic and psychiatric illness, research areas where it's difficult to gain traction when you're focused on the disease itself," explained Dr. Glahn. "This is because the things we're interested in — be they cognition, brain structure or brain physiology — are changed dramatically in people with mental illness. So we [in the psychiatric community] are constantly questioning, 'Is this change [in the brain] a cause of the illness? A result of the illness? A result of treatment of the illness?' By studying the biology of the brain in healthy subjects, we'll be able to overcome the 'chicken-and-egg' problem that's constantly there in clinical research."

Potential impact

Dr. Glahn added that this study "allows us to potentially set the benchmark for which we can compare other studies that are more focused on individual diseases. We hope it will be the kind of study that will be the basis for a kind of next generation of psychiatric and neurologic genetic studies."

Its focus on genetic contributions to brain structure and function also should enable scientists to get to the underlying causes of mental disorders, and to develop better therapies.

"When we find a gene [that influences changes in the brain], that gene will immediately take us into the biology that isn't there now," Dr. Blangero said. "So, in terms of a discovery project, discovering a gene that's involved in brain function has potentially enormous ramifications for many areas of health. It immediately becomes a target for drug development, and it



At left, a study participant prepares for an MRI at UTHSCSA's Research Imaging Center. At right, Dr. John Blangero stands in the AT&T Genomics Computing Center at SFBR. Researchers say UTHSCSA's expertise and high-tech resources for brain imaging and SFBR's world-class genetic resources and expertise make this study an ideal collaboration that could be conducted in few other cities in the world.





Dr. David Glahn reviews brain images produced from MRI scans of study participants. The variety of stylized images allows researchers to track normal variation in all areas of the brain, including regions that control motor movement, conduct problem solving and affect mood.

clarifies the nature of the underlying causal pathway [of a disorder], which in many cases we don't currently know."

That will help the medical profession to move beyond relying on drugs that treat symptoms, rather than causes, of brain disorders, Dr. Blangero added.

The San Antonio advantage

Both scientists point out that San Antonio is one of the few places this type of groundbreaking study can be conducted because of the unique combination of resources and expertise developed at SFBR and UTHSCSA, as well as previous funding commitments to these resources by the National Institutes of Health, the State of Texas, private industry, and generous donors.

For example, research subjects for the study are being drawn from the San Antonio Family Heart Study, a long-term study funded by the NIH to find genes influencing risk for heart disease, diabetes and obesity. Led by SFBR geneticists with the support of investigators at UTHSCSA, the study includes 1,400 Mexican Americans from 40 San Antonio families, making it one of the largest family-based human studies known, offering tremendous potential for genetic discovery. For the past 15 years,

participants have provided health and demographic information, undergone periodic physical examinations and provided blood samples for this extensive genetic investigation.

Now 1,000 members of that group are being recalled to undergo cognitive testing and have images of their brains

taken with the advanced MRI equipment at UTHSCSA's Research Imaging Center. Directed by Dr. Peter Fox, who is offering valuable support to this new investigation, the center offers tremendous expertise and the latest in state-of-the-art imaging equipment that "lend a level of sophistication to this study that wouldn't otherwise be possible," said Dr. Glahn.

"The amount of data that's generated from an image is just amazing. We routinely get about 150,000 variables."

Dr. Glahn's part of the research team will analyze the cognitive information and the brain images to sort out data relevant for Dr. Blangero's group at SFBR to search for genes related to normal brain variations.

At SFBR, home to one of the leading genetics groups in the world for large family-based studies, Dr. Blangero will use the novel statistical methods developed by him and his peers along with the world's largest computing cluster for genetic analysis – housed in the AT&T Genomics Computing Center – to sift through the vast amounts of research data and search for the genes influencing various aspects of brain structure and function. That work will be followed up by genetic sequencing studies in SFBR's molecular high-throughput laboratories, where scientists hope to identify the variations within those genes that are responsible for their varied effects.

"This study is truly the perfect marriage of our two institutions," said Dr. Blangero in describing the collaboration between SFBR and UTHSCSA. "By combining our resources and expertise, we're able to do something that could be done in few other places in the world. The result should be a major leap forward in scientific efforts to understand and better treat mental health problems."



We want to inform aspects of brain biology that are relevant for a lot of different diseases.

– Dr. John Blangero, an SFBR geneticist and director of the AT&T Genomics Computing Center

A photograph of a modern, multi-level interior space, likely a lobby or atrium. The ceiling is high and features a complex, geometric design with recessed lighting. Large windows on the upper level allow natural light to enter. The space is furnished with dark, modern armchairs and a central table. A large, abstract blue and white artwork is mounted on the wall. A red "EXIT" sign is visible in the background. The overall atmosphere is clean, bright, and contemporary.

Celebrating a legacy for future generations



TOP LEFT: Gathering for the Earl Slick Center opening are Earl Slick's daughter, Phyllis Cowell (second from right) with (L-R) her daughter-in-law Michelle Cowell, son-in-law Allen Ives and daughter Lynn Ives. **TOP RIGHT:** SFBR President and Chairman John C. Kerr welcomes guests to the center opening. **BOTTOM LEFT:** SFBR geneticists Matt Johnson and Katy Freed show off new laboratory equipment during the evening tour. On the tour are Slick relatives Charles Slick and Patty Beem, children of SFBR founder Tom Slick, and Susan Kerr, daughter of Betty Slick Moorman. **PAGE 6:** View of the Leroy G. Denman Jr. Atrium.

Donor reception marks opening of Earl Slick Center



It was a truly festive evening at SFBR on March 26, as employees and friends of the Foundation gathered to celebrate the opening of the Earl Slick Center, named in honor of an SFBR founding trustee who over the years has provided invaluable leadership and generous financial support to the institution founded by his brother, Tom Slick.

The major renovation of this office and laboratory complex, which houses most of the Genetics Department as well as the Northrup Library, is the culmination of efforts funded by a recently completed \$40 million capital campaign to which Earl Slick was the initial and lead donor. It also is the latest in a long list of campus improvements begun in the late 1990s to ensure that SFBR scientists have state-of-the-art facilities in which to conduct their cutting-edge research.

With scientists just recently moved into their new work space, scientific journals back neatly on library shelves, and new amenities such as an electronic classroom in operation, the evening reception gave the Foundation an opportunity to thank its donors, whose philanthropic support funded the

vast majority of this and other campus improvements. It also gave donors the chance to see their money put to work for the benefit of scientific research aimed at improving human health.

Donors impact the future

SFBR President and Chairman John C. Kerr opened the reception telling guests, "This building is both the culmination and the crown jewel of a major capital campaign on which we embarked in the year 2000, and through which you, our donors, lived up to this evening's theme, leaving 'A Legacy for Future Generations.'

"That tremendously successful campaign raised \$3.5 million to assist with the recruitment of key scientists to join our faculty, scientists who bring with them additional expertise and vision to complement the breadth of scientific research at SFBR; \$16.5 million towards our endowment, which will provide critical revenue to advance research efforts now and for years to come; and more than \$24 million for capital improvements to our campus, allowing the

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A few of the research resources found in the newly dedicated Earl Slick Center include the Kelso Cryopreservation Facility for the proper storage of genetic study samples; state-of-the-art genetic laboratories; and the library's new "collaboratory" and Vaughn Meyer Electronic Classroom, ideal for formal instruction and research collaborations that rely on computing and Internet capabilities.

Legacy, continued from page 7

construction of new laboratories, which Louis Pasteur once described as 'sacred places where the future is born.'"

Kerr continued, "Nearly \$20 million of the campaign funds, coupled with approximately \$4 million from the National Institutes of Health, enabled the extensive renovations we're now enjoying in the Earl Slick Center. The result is a state-of-the-art laboratory building that is as fine a science building as that at any research institution in the United States, improving the ability of our scientists to find genes that influence our susceptibility to cardiovascular disease, diabetes, obesity, osteoporosis, psychiatric disorders, pregnancy disorders, and even infectious diseases.

"This follows campus additions previously funded by the campaign, such as the new AT&T Genomics Computing Center, which houses the world's largest computing cluster for statistical genetic analysis. It's also in addition to other campus improvements funded outside this campaign, such as the Betty Slick and Lewis J. Moorman Jr. Laboratory Complex for our Virology and Immunology Department. Completed in 1999 with \$11 million in gifts from donors and \$1.3 million from the NIH, this complex is home to the nation's only privately owned biosafety level four laboratory, a maximum containment facility that is invaluable for infectious disease and biodefense research. And another \$8.5 million from the NIH has enabled impressive additions and upgrades to animal facilities that support the outstanding research of our Southwest National Primate Research Center."

Kerr added, "Over the past several years, we've done amazing things to this campus, all for the ultimate benefit of science. Even more amazingly, we've been able to do so without incurring any debt – that is, except for the huge debt of gratitude we owe to the many individuals, corporations and foundations that made our fundraising efforts such a success. And certainly we extend our greatest thanks to Earl Slick, an untiring leader and supporter of the Foundation since its inception. His gift to the capital campaign – the first

and by far the largest – challenged our outstanding Board of Trustees to give in kind and truly jump-started this fundraising effort, creating the momentum it needed to succeed."

Corbett Christie, chief development officer at SFBR, echoed Kerr's sentiments. "Earl Slick's lead campaign gift set the highest standard for trustees and other donors that followed. His generosity gave us early momentum that never waned until we topped the goal," he said. "Our thanks go to him and to all who contributed. Our campaign success is a great thing because it will allow SFBR to reach new heights. Great things don't happen without believers. Our scientists are dedicated believers. Now they know a community of believers – our donors – backs them every step along the way. We all believe we can create a healthier tomorrow."

Dr. Sarah Williams-Blangero, chair of the Department of Genetics, explained why the renovations to the Earl Slick Center, in particular, are so important to faculty in the department. "The renovation has provided us with state-of-the-art laboratory spaces and well-equipped offices that are facilitating scientific progress at an unprecedented rate," she said. "Already, the resulting increased efficiency of our operations is evident in the many collaborative grants and publications our scientists have submitted since the Earl Slick Center opened."

Dr. Williams-Blangero added, "The center's design fosters the scientific interactions between laboratories and between researchers that are critical for the development of innovative research programs in gene discovery. We thank Mr. Slick for his vision and leadership in creating this unique center for genetic research on common complex diseases, and we are grateful to all the other generous donors who supported this effort with their contributions."

Tour demonstrates impact of new facilities

Following the welcoming reception, a tour of the Earl Slick Center allowed donors to see for themselves the center's



extensive improvements. That work included the complete demolition and reconstruction of the interior of the Tom Slick Memorial Building and the Urschel Memorial Research Laboratory, originally built in the late 1950s and early 1960s.

The rear portions of each building, involving 20,000 square feet of laboratory and office space, were rebuilt between August 2002 and December 2003 as Phase II of the SFBR Campus Modernization Plan. Reconstruction of the front portions of the complex – housing 40,000 square feet of genetics laboratories, offices, the Preston G. Northrup Memorial Library and the Kathleen L. and Robert M. Luby Library Atrium – was done in 2005-2006, completing Phases III and IV of the Campus Modernization Plan.

As a result, the center's old labyrinth interior, with dead-end corridors and inadequate power for modern laboratory equipment, is gone. Now, as visitors and employees enter the complex, they pass through a beautifully redesigned library that leads into the Leroy G. Denman Jr. Atrium, featuring a bright, open space bathed in natural light with comfortable seating and fold-out dry-erase boards for casual and impromptu meetings. Off the atrium are found clusters of offices that give faculty more spacious and efficient workspace close to colleagues with whom they collaborate.

Then, beyond the offices, one passes into state-of-the-art laboratories complete with infrastructure upgrades to meet modern power and safety standards – especially important for the high-throughput equipment needed to analyze the vast amounts of genetic data that are part of the Genetics Department's large-scale family studies.

Library upgrades benefit entire SFBR faculty, aid collaboration

The library also has been transformed to better meet the needs of all SFBR scientists and their research collaborators. While there still are shelves of scientific journals, the move to electronic publications that scientists access online has freed up a significant amount of space, allowing larger areas for private study coupled with window views, separate working space for group collaborations, as well as a lounge area for casual gatherings or meetings.

In addition, wireless network access is ubiquitous throughout the library, and there are abundant connections for



ABOVE: Rich and Kitty Meyer Lang learn about a high-tech genetics "robot" during a laboratory tour. **BELOW:** Some of the honored guests gathered for the evening's celebration included Nancy Moorman, Phyllis Slick Cowell and Susan Kerr.



SFBR scientists and their collaborators to access the SFBR network and the Internet while working there.

Two especially exciting additions to the library are the Vaughn Meyer Electronic Classroom and the new "collaboratory." Both feature computer workstations, a wired lectern, network and Internet access, video projector capabilities, and what is called a digital wall.

"A digital wall is basically a computer within a wall," said

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Bruce Bugg, co-trustee of the Tobin Endowment (left), and SFBR President John Kerr (right) present Leroy Denman with a photo of him and SFBR founder Tom Slick during the dedication of the Leroy G. Denman Jr. Atrium.



Legacy, continued from page 9

Danny Jones, SFBR librarian. "It looks like a whiteboard, but there is a computer inside that provides all the capabilities of a desktop machine connected to the Internet and our campus network – including the ability to download software, view video, input and save new data, or anything else our scientists might need to do – but on a screen that can be viewed by a large number of people."

Jones said the electronic classroom and the collaboratory, which feature both Windows and Macintosh computers, already are proving useful for technology-based instructional programs, such as training in new software or bibliographic databases. But he expects the collaboratory, in particular, to be a great asset for local, national and even transcontinental research collaborations. With moveable furniture, laptop computers, and the digital wall, it provides an ideal setting for SFBR scientists to come together in one comfortable but high-tech area to work in real-time with each other and collaborators as far away as China, Australia, Canada, Spain or Brazil.

"That's key, because the future of science is collaboration," said Jones. He added, "The library has pole-vaulted into the 21st century. I think that these new resources, coupled with additional seating and the more comfortable, attractive setting created in the library will make it a main hub of the campus, for employees and visitors alike."

Scientists offer appreciation for upgrades

Scientists are quick to show their enthusiasm for their new facilities. "One of the things I like best is the larger and more

efficient workspace we have," said Dr. Lorena Havill. "I don't waste time sorting through stacks to find what I need because now I can keep my active work projects together and in sight. I also love the atrium space. The whiteboards are very handy, and the space in general is conducive to reading alone or meeting with small groups and brainstorming."

Dr. Jeff Rogers, who moved into his new laboratory after the completion of Phase II renovations, had this to say: "The recent series of renovations in the Slick Center and other campus facilities are a significant benefit to all of us working in the Department of Genetics. These improved laboratories now support research activities much more effectively than the older out-dated facilities."

Rogers further explained, "The tools and methods of biomedical science change dramatically over time, and that means laboratory space must change as well to support the newer technologies. Our new laboratories make our jobs easier, and frankly, produce a much more pleasant working environment. That translates to better research studies and faster progress. I want to thank all the donors, supporters, SFBR staff and funding agencies that made this substantial improvement in our scientific facilities possible."

The Campaign for Southwest Foundation 2000-2005

When Thomas B. Slick, Jr. founded our institution he envisioned "a great center for human progress." Philanthropy is a cornerstone of that vision and it sustains us today. It is with great appreciation that we recognize these donors who share our vision through their donations to this campaign.

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*SFBR salutes friend
and visionary leader*
Earl Slick



s the Foundation celebrates the opening of the Earl Slick Center – more than 60,000 square feet of office, laboratory, and library space that support the efforts not only of the Genetics Department but the entire Foundation staff – it pays tribute to one of the cornerstones of the Foundation’s success throughout its history.

“Earl Slick has truly been one of the lifelong, guiding forces behind this great institution,” said SFBR President and Chairman John C. Kerr. “Earl was present when his brother, Tom Slick, founded our organization in the 1940s, and he has served on our Board of Trustees from its inception. In fact, it is fair to say that after Tom Slick’s tragic death in 1962, the leadership of Earl Slick, along with that of his brother-in-law Lewis J. Moorman Jr., was responsible for guiding the Foundation and keeping it on its path of success.”

Kerr further explained, “It’s important to remember that San Antonio was not a hub of scientific research in those days. The

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Brothers Tom and Earl Slick (L-R) enjoy a visit on the lawn of the Cable House, the original administration building for Southwest Foundation and its sister organization, Southwest Research Institute.



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infrastructure wasn't here. It was Tom Slick's pursuit of his dream for a great center for human progress through scientific research that got the organization off the ground and moving forward. Then, when he died unexpectedly in a plane crash, Earl Slick, together with co-executors Lewis Moorman and Charles Urschel, stepped forward with guiding hands to help chart the organization's course for the future. Earl's support – both personally and financially – has continued to this day, and it is a major reason that Southwest Foundation for Biomedical Research is now one of the leading independent biomedical research institutions in the United States.”

As a man of vision, Earl Slick has built a legacy that extends far beyond the gates of SFBR. An aviator in World War II, he returned to San Antonio and founded Slick Airways, the first freight-only airline in the United States. Through the creation of this airline, which later merged with Flying Tigers, he pioneered a new industry that paved the way for modern-day giants Federal Express and United Parcel Service (UPS).

In the 1950s, Earl and his wife, Jane, moved to Winston-Salem, N.C., where he has continued as a highly successful business entrepreneur in numerous areas ranging from real estate development to the lodging industry. He was one of the founders of Atlantic Aero, Inc., a regional fixed-base operation and aviation engineering and innovation company

located at the Piedmont Triad Airport. He also has participated in the development of his community by membership on various community development commissions.

In addition, his generous spirit and visionary attitude have inspired his major philanthropic support of SFBR as well as numerous other organizations that include educational institutions such as Wake Forest University and his alma mater, Phillips Exeter Academy; historical institutions and museums such as the National Cowboy & Western Heritage Museum in Oklahoma City, the Palm Springs Air Museum in Palm Springs, Calif., as well as Old Salem, Inc./Old Salem Museum and Gardens, the Museum for Early Southern Decorative Arts (MESDA), and the Reynolda House Gallery of American Art, all in Winston-Salem, N.C.; and nature and wildlife preservation groups such as the National Audubon Society, to which his numerous contributions include an 1,800-acre nature preserve at Pine Island, N.C. He also has established his own charitable organization, the Slick Family Foundation.

It is with sincere admiration and heartfelt gratitude that everyone at SFBR thanks Earl Slick for the valued contributions he has made to our organization and to society as a whole. Like his brother Tom, he inspires us in our pursuit of human progress through scientific research as we work to leave a lasting legacy for future generations.



After serving as an aviator in World War II, Earl Slick returned to San Antonio and founded Slick Airways, the first freight-only airline in the United States.

Tributes by SFBR faculty, staff and friends

"Earl Slick has been a driving force in the development of the Southwest Foundation for Biomedical Research to its current level of excellence as an elite independent research institute. Earl's commitment to SFBR has enabled this institution to establish an international leadership position in biomedical science. Thank you, Earl, for supporting me and the other scientists as we devote our lives to fulfilling the SFBR mission: to improve the health of our global community through innovative biomedical research."

— *Dr. John L. VandeBerg,*
SFBR Chief Scientific Officer

"Earl Slick leads by example, and that takes extraordinary vision. I wish I could have met Earl Slick's mother, his brother Tom and sister Betty. They each had the kind of vision we see from Earl Slick. SFBR is an extraordinary place because of visionaries like him."

— *Corbett Christie,*
SFBR Chief Development Officer

"The continued extraordinary support of the Southwest Foundation by the Slick family, as evidenced by the generous assistance provided by Mr. Earl Slick for the recent renovations, is much appreciated by all of us at SFBR. The support from Mr. Slick is making a tremendous impact in the laboratory and office facilities for faculty scientists, postdoctoral researchers and technical staff. These wonderful new facilities translate directly into higher productivity, higher morale and faster progress in our efforts to improve human health."

— *Dr. Jeff Rogers, Scientist,*
SFBR Department of Genetics

"Thank you, Mr. Slick, for the trust you've placed in all of us at SFBR to be good stewards of your generosity; for your optimism that we can achieve the good work we set out to accomplish; and for your vision that the future will be enriched by investment in biomedical research. Your enthusiasm and support inspire SFBR scientists and administrative staff alike as we work together to carry out the mission given to us by your brother, Tom."

— *Danny Jones, SFBR Librarian*

"It is a true honor to help celebrate the magnificent contributions of my long-time and true, loyal friend since the early 1940s, Earl Slick. We, and all of San Antonio, were saddened when he and his wife, Jane, moved to Winston-Salem, N.C. Earl has a sense of spirit that is displayed by his love of family and equal enthusiasm for sports and world travel. His many friends everywhere testify to his integrity and generosity."

— *Kathleen Jersig Kuper, friend*

"Earl Slick is one of the most forward-thinking people I know. With a true entrepreneurial spirit, it seems he is always making plans for new projects or pursuing new endeavors. Often, those plans include Southwest Foundation for Biomedical Research. I don't think there is ever a time that the Foundation is not on his mind and on his heart, probably because of his love and loyalty to his older brother, Tom, and to his sister, my mother, Betty. I don't believe the Foundation could have a truer friend. And the generosity he's shown the Foundation is just one of the ways he reveals his big heart. He is generous in every way: to his community in Winston-Salem; to young entrepreneurs who have needed a helping hand getting their own businesses started; to his family; and to so many others. On top of all that, he's so much fun to be around!"

— *Susan Kerr, niece*

"My father had a great vision for the Southwest Foundation. Unfortunately, since he died so soon after the creation of the Foundation, it was left to others to lead the way. It is safe to say that very few people have done more than my uncle Earl Slick has to help the Foundation fulfill its mission. Through his determination and his generosity he has led the way to make the Foundation the great center of scientific research that it is today."

— *Charles Slick, nephew and fellow*
SFBR Trustee

Unleashing the potential of the rhesus genome

Rhesus DNA sequence unveiled, expected to benefit from linkage map



he most widely used nonhuman primate model in research on human health and disease has just become even more valuable, thanks in part to scientists – and a monkey – at Southwest Foundation for Biomedical Research.

A multi-center team funded by the National Human Genome Research Institute (NHGRI) published in the April 13 issue of the prestigious journal *Science* the complete sequence for the genome of the rhesus macaque monkey.

Work on the genetic sequence, which details more than 98 percent of the “clonable” DNA along the rhesus genome, was conducted at the Baylor College of Medicine Human Genome Sequencing Center (BCM-HGSC) in Houston, the Genome Sequencing Center at Washington University in St. Louis, and the J. Craig Venter Institute in Rockville, Md. – all part of the NHGRI-supported Large-Scale Sequencing Research Network – under the direction of Dr. Richard Gibbs, director of the BCM-HGSC.

The consortium had assistance in this effort from Dr. Jeff Rogers, a geneticist at SFBR and a co-author on the publication in *Science*. Dr. Rogers was lead author on a white paper that nominated this species as the second nonhuman primate to be selected by the NHGRI for whole genome sequencing. The first was the chimpanzee.





Dr. Rogers reasoned that the rhesus' genetic sequence would be especially valuable because of the monkey's genetic closeness to humans and because scientists have spent the last century accumulating a wealth of research data on the rhesus, dating back to early infectious disease research. Today, the rhesus serves as the primary animal model for the study of HIV and AIDS as well as for studies on neuroscience. It also is a vital animal model for research on metabolic disorders such as cardiovascular disease, diabetes and obesity, reproductive biology, aging, vision, mental health and addictive disorders, pharmacology, and a host of other human health issues.

"Because so much is already known about the rhesus, this genetic sequence is poised to have a more immediate impact than it would with an animal that was less understood," said Dr. Rogers. "That was a big part of why we urged the National Human Genome Research Institute to select the rhesus monkey for sequencing, because there already is so much data, so much information, that researchers can build upon for the advancement of human health."

When NHGRI approved the project, Dr. Rogers served as a liaison between genome sequencing centers and primatology centers.

The DNA sequence was derived from a female rhesus macaque monkey that was part of the colony at SFBR's Southwest National Primate Research Center, where Dr. Rogers also is a faculty member.

Dr. Gibbs said that Dr. Rogers and the Southwest National Primate Research Center at SFBR were pivotal in the project's success.

"There is no question about that," Dr. Gibbs said. "Jeff first championed the request to sequence the rhesus genome, and throughout the whole process, he has brought the perspective of the primatologist as well as the molecular biologist to the project."

Potential impact

Dr. Gibbs said the sequencing of the rhesus genome is poised to have a dramatic impact on three key areas of research.

"It should enhance research on human diseases by providing a better understanding of this commonly used animal model," he said. "In the evolutionary context, it also will help researchers identify genes that are key players in determining the differences between primate species. And finally, the sequence should improve studies on the rhesus itself, which is a fascinating animal, by providing new genetic tools."

Dr. Rogers is particularly enthused about how this breakthrough will benefit worldwide research on human health and disease, ultimately leading to new and improved methods of disease prevention and treatment.

"From the perspective of the national biomedical research effort, rhesus monkeys are the most widely used and most significant nonhuman primate model for biomedical research," Dr. Rogers said. "As the best animal model for investigations on AIDS, rhesus monkeys are particularly

Continued on page 16

**Rhesus, continued
from page 15**

important to that research effort, but they also are the primary model for neuroscience, addiction research, vision research, diabetes, and pharmacology.”

With AIDS, he believes the sequencing should help further understanding of such things as why certain animals can withstand the virus so much longer than others, what happens to cells when they are infected by the virus, what genes are turned on or off when someone is infected with the virus, and what the virus does to the function of those genes in the cell.

Scientists also are using the rhesus sequencing to shed light on immunological response to diseases such as influenza.

Dr. Rogers said that the sequencing also should advance understanding of mental health. Rhesus monkeys’ similarity to humans in behavior and neurobiology makes them helpful in studies of such disorders as anxiety and depression, the focus of some of Dr. Rogers’ own research at SFBR.

The sequence and the map

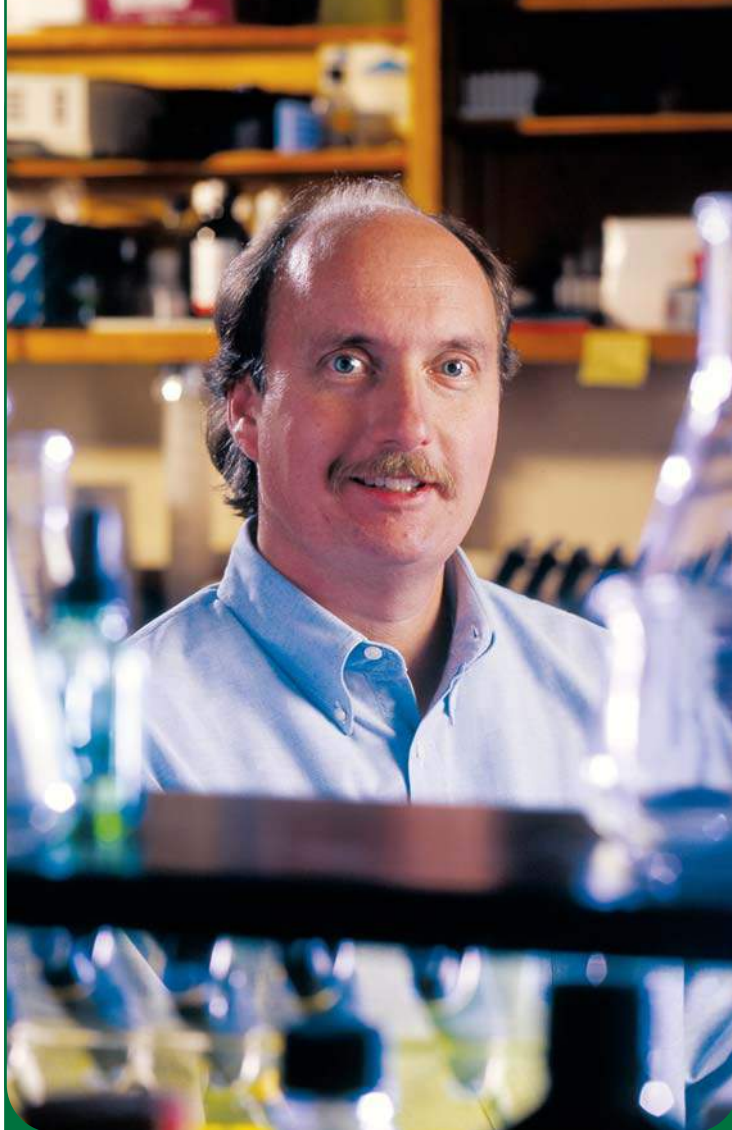
The sequence should be even more valuable to efforts to find disease-influencing genes when used in conjunction with the rhesus genetic linkage map developed by Dr. Rogers and published in 2006 (*Genomics*; Vol. 87, Issue 1).

Dr. Gibbs pointed out the genetic linkage map actually was instrumental in the final assembly of the rhesus genome sequence. “As part of the assembly process, we have to decide where things go at the very highest level, and Jeff’s genetic map was useful for that,” he said.

Explaining the difference between the sequence and the map, Dr. Rogers illustrated how each is more powerful for genetic research when paired with the other.

“The genome contains 3 billion base pairs of DNA,” Dr. Rogers explained. “If you think of the entire genome stretched out as a long highway going from New York to Los Angeles, the DNA sequence tells you every detail of everything you’re going to see as you go down that highway, down to every blade of grass you’ll pass.

“That’s obviously valuable information, but it’s a lot to



SFBR scientist Dr. Jeff Rogers was lead author on the white paper nominating the rhesus monkey for full genome sequencing. He then played a key role in the sequencing effort.

sift through if you’re trying to find a particular blade of grass – or in reality, a genetic variation – that influences a certain disease or trait. So the genetic linkage map essentially gives you landmarks or lampposts to help you figure out which general area you need to look in [to find a gene influencing a certain trait, such as the color of your eyes or susceptibility to high blood pressure]. In genetic jargon, we call these lampposts ‘markers.’ By combining the linkage map and its markers with the whole genome sequence, we can look in more detail within that one most important area.”

To create the linkage map, Dr. Rogers and his team used genetic samples from 900 rhesus monkeys at both the Southwest National Primate Research Center and the Oregon National Primate Research

Center. They analyzed short

stretches of DNA that showed variation, or polymorphisms, from animal to animal, then placed a marker at each of those locations, creating the map of 250 markers across the genome.

“Now, with this tool, we geneticists can study large families of rhesus monkeys and look for the co-inheritance of a specific genetic marker and a specific disease trait, whether it be high blood pressure, insulin resistance, low bone density, or anything else we’re investigating. Then we know where along a particular chromosome we need to focus our efforts to find the specific gene affecting that trait. In essence, the marker is like a lamppost that illuminates a section of a long, dark highway and helps us see the gene we’re trying to find. With enough markers, we can illuminate the entire length of the sequence.”

The genetic linkage map Dr. Rogers developed for the rhesus monkey is only the second linkage map developed for a nonhuman primate. The first, for the baboon, also was developed at SFBR’s Southwest National Primate Research Center by Dr. Rogers and fellow SFBR scientist Dr. Michael Mahaney. The map is continually updated by a team that includes Drs. Rogers and Mahaney and their colleague Dr. Laura Cox. Already, the baboon linkage map has facilitated progress toward the identification of numerous genes influencing cardiovascular disease, diabetes, obesity, osteoporosis, infectious diseases, and mental disorders.

Both genetic mapping efforts were funded by the National Center for Research Resources, part of the National Institutes of Health. Work on the rhesus map also received funding from the NIH's Office of AIDS Research, and work on the baboon linkage map benefited from support from and collaboration with Sequana Therapeutics, Inc., a biotech company based in La Jolla, Calif.

Better together

Dr. Rogers says that, together, the DNA sequence and the genetic linkage map for the rhesus macaque should benefit genetic research with rhesus monkeys in the same way that the human DNA sequence and gene map have propelled genetic research with people.

"Development of the human linkage map has led to the identification of hundreds of different genes that influence different health-related traits, everything from diabetes to schizophrenia," he said. "Human genetics is now largely based on the DNA sequence and the linkage map to tie the sequence to the individual variation for specific diseases. So what we've done here is build a combination of tools that will allow people to use many of the strategies developed through human genetics for research with rhesus monkeys."

Dr. Rogers and other researchers already have been using the genetic linkage map to try to locate genes that

influence susceptibility to anxiety disorders and depression, and specific behaviors related to them in rhesus. But with the map, they could only locate a general area where they thought such genes were located.

"Now that we also have the full genetic sequence, we can look up that segment of DNA on the databases and see exactly what genes are there," Dr. Rogers said. "Hence, we can tremendously accelerate our ability to find individual genes and to test individual genes to see whether that's influencing the trait that we're interested in."

"So we fully expect the linkage map that we've built for the rhesus – especially when coupled with the newly published rhesus DNA sequence – to be valuable for studies on a wide range of different health problems being investigated by scientists all across the country and even around the world."



The sequencing of the rhesus genome is poised to have a dramatic impact on research.

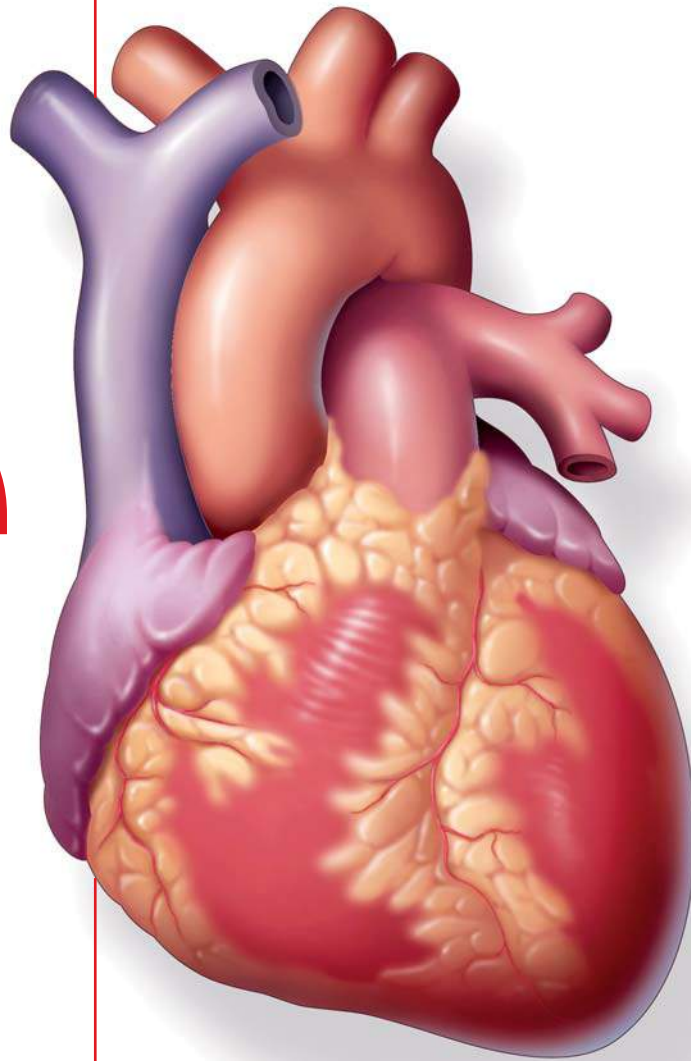
— Dr. Richard Gibbs, director of the Baylor College of Medicine Human Genome Sequencing Center, who directed the sequencing effort.



Work on the rhesus monkey's genetic sequence, which details every piece of DNA along the rhesus genome, was led by the Baylor College of Medicine Human Genome Sequencing Center in Houston.

Cure for most heart attacks is free

But it's important to start young



Editor's note: This article, which was distributed to and run by newspapers nationwide, offers personal reflections and practical advice on heart disease prevention by Henry C. McGill Jr., M.D., senior scientist emeritus at SFBR, who even in retirement continues to build upon his distinguished 55-year career investigating atherosclerosis (hardening of the arteries) in humans and nonhuman primates.

A pioneer in research on atherosclerosis and other aspects of cardiovascular disease, Dr. McGill in recent years has focused on the origin and progression of atherosclerosis in childhood, adolescence, and young adulthood. His efforts as part of a national collaborative study have led to groundbreaking findings that the same risk factors for adult coronary heart disease – high cholesterol, hypertension, smoking, obesity, diabetes – are causing the onset and all-too-rapid progression of atherosclerosis in our nation's youths. These findings have been cited by the American Heart Association as evidence that heart disease prevention needs to start in childhood.

Dr. McGill has made it his personal mission to carry this important message to the public, and we are happy to share his insights with our Progress readers. Following his challenging yet simple advice could save your life or the life of someone you love.



Just about every adult these days knows that a diet laden with fats and sugar, combined with little or no regular exercise and risky behaviors like smoking, is a recipe for major problems including diabetes and heart attacks. But Dr. Henry C. McGill Jr., senior scientist emeritus at SFBR and a renowned heart disease researcher, says adults need to realize that those same bad habits in children set them up for their own problems years down the road.

The good news, he adds, is that the fix is free. That's because it costs nothing to change children's diet and exercise routines from harmful to helpful.

"We could probably eliminate 90 percent of heart attacks if we'd make sure our kids were eating right and getting enough exercise from the start, rather than waiting to treat them for diseases that show up decades later as a direct result of years of bad eating habits and a lack of exercise," says Dr. McGill. "What we've found through literally decades of study is that the beginning of atherosclerosis (often called hardening of the arteries) can be detected in children as young as 12 years old. They may be in their 40s or 50s or 60s when they experience a heart attack, but the build-up of deposits in the artery walls began many years earlier, when they were kids."

Dr. McGill believes a "cultural revolution" will be necessary for attitudes to change about children's lifestyles, but he's already seeing hopeful signs, including more schools

prohibiting sugar-laced soft drinks on campus and reinstating physical education classes.

"Fifty years ago, two thirds of the U.S. population smoked, and today that number is closer to one fifth," he added. "That's still too many smokers, but it shows that society's attitudes and individuals' behaviors can change over time."

Groundbreaking study

Under the Pathobiological Determinants of Atherosclerosis in Youth (PDAY) study, Dr. McGill and research scientists from 13 other institutions across the country have been studying risk factors for adult coronary heart disease (lipoproteins, blood pressure, blood glucose, smoking, obesity) in young people since 1987. They collected tissue and data from about 3,000 young persons 15 through 34 years of age – all of whom had died of accidents, homicide, or suicide and were autopsied in forensic laboratories – and measured the atherosclerosis in their arteries.

The results show conclusively that the risk factors for adult coronary heart disease are associated with the progression of atherosclerosis beginning in the teen years. The association is so strong and consistent that a causal relationship appears highly likely. These results indicate that prevention of adult coronary heart disease should begin with control of risk factors beginning in adolescence, Dr. McGill said.

In fact, three subsequent studies from around the world have confirmed the PDAY group's findings. These studies involved living young people in whom atherosclerosis was measured by ultrasound and x-ray. Using a risk score system developed by PDAY scientists, the studies have shown that risk factors for cardiovascular disease measured in the

teenage years can be used to accurately predict levels of thickening of carotid arteries and calcification of coronary arteries (both markers for atherosclerosis) 15 years later.

This risk score system, developed by Dr. C. Alex McMahan at the University of Texas Health Science Center at San Antonio, Dr. McGill, and their PDAY collaborators, was published in the *Archives of Internal Medicine* in 2005. Intended for use by family physicians to calculate their patients' risk of having the build-up of fatty plaques in the arteries that can eventually lead to heart attacks and strokes, the scoring method is based on body weight, whether or not the person smokes, and blood pressure, cholesterol and blood sugar levels.

Next steps

Two common risk factors that almost anyone can do something about, Dr. McGill said, are smoking and obesity. Too many calories and not enough exercise lead to obesity, which has become an epidemic in many developed nations and is the most powerful risk factor for diabetes. Diabetes leads to an array of health problems that include heart attacks, blindness, and kidney failure.

"We're seeing more kids today with adult-type diabetes than we've ever seen before. And, unfortunately, we still have about 20 percent of high school students in the U.S. smoking," McGill said. "And there's absolutely nothing good you can say about what smoking does to your body."

All of which gets back to what can be done to address the problem. The burden primarily falls on parents, Dr. McGill explained. "If you're a parent, don't smoke. Eat healthy. Exercise. Set the right example. If you're eating a lot of junk food, smoking, and letting yourself become overweight, you're teaching your kids to do the same thing. But it doesn't cost a thing to change those habits."

Dr. Henry McGill
looks at an artery
from one of his
studies on
atherosclerosis.



The “I” in science:

Luis Giavedoni pushes toward the finish line in the race to defeat AIDS



s a scientist with the SFBR Department of Virology and Immunology and the Southwest National Primate Research Center, you’re battling a modern plague: the AIDS virus. What makes this virus such a challenge?

The very nature of the virus. It wreaks havoc with the cells that are critical to responding to a viral infection. At the same time, it has an insidious way of hiding from the immune system and then popping up when it needs to be replicated. It also is a retrovirus, a type of virus that can integrate into your genome so that it’s always with you. And retroviruses are constantly evolving, requiring your immune system to keep up with their changes. For being such a tiny structure, the AIDS virus is amazingly complex.

Your laboratory takes a variety of approaches in the fight, focusing on the simian (nonhuman primate) version of HIV, called SIV, in the rhesus monkey model. Would you describe some of your efforts?

We study the pathogenesis of the virus, because once you can identify the natural evolution of the infection, you can understand the steps that the disease follows. With that knowledge, you can plan therapies to modify the outcome of the infection. Our other major focus is vaccine development. A vaccine against HIV is critical because, despite advances with antiretroviral therapies, the percentage of the world’s population that has access to antiretroviral drugs is very small.

What vaccine approaches are you taking?

We’ve developed a live attenuated vaccine that is effective in monkeys. Live attenuated vaccines are based on a virus that has been modified genetically so that it can still infect but not cause disease. This is usually the most effective type of vaccine. The problem with HIV and SIV is

that they are retroviruses, which incorporate into your genome in a random way. You can’t control where they insert themselves, and if they go in the wrong place, that could cause health problems down the road.

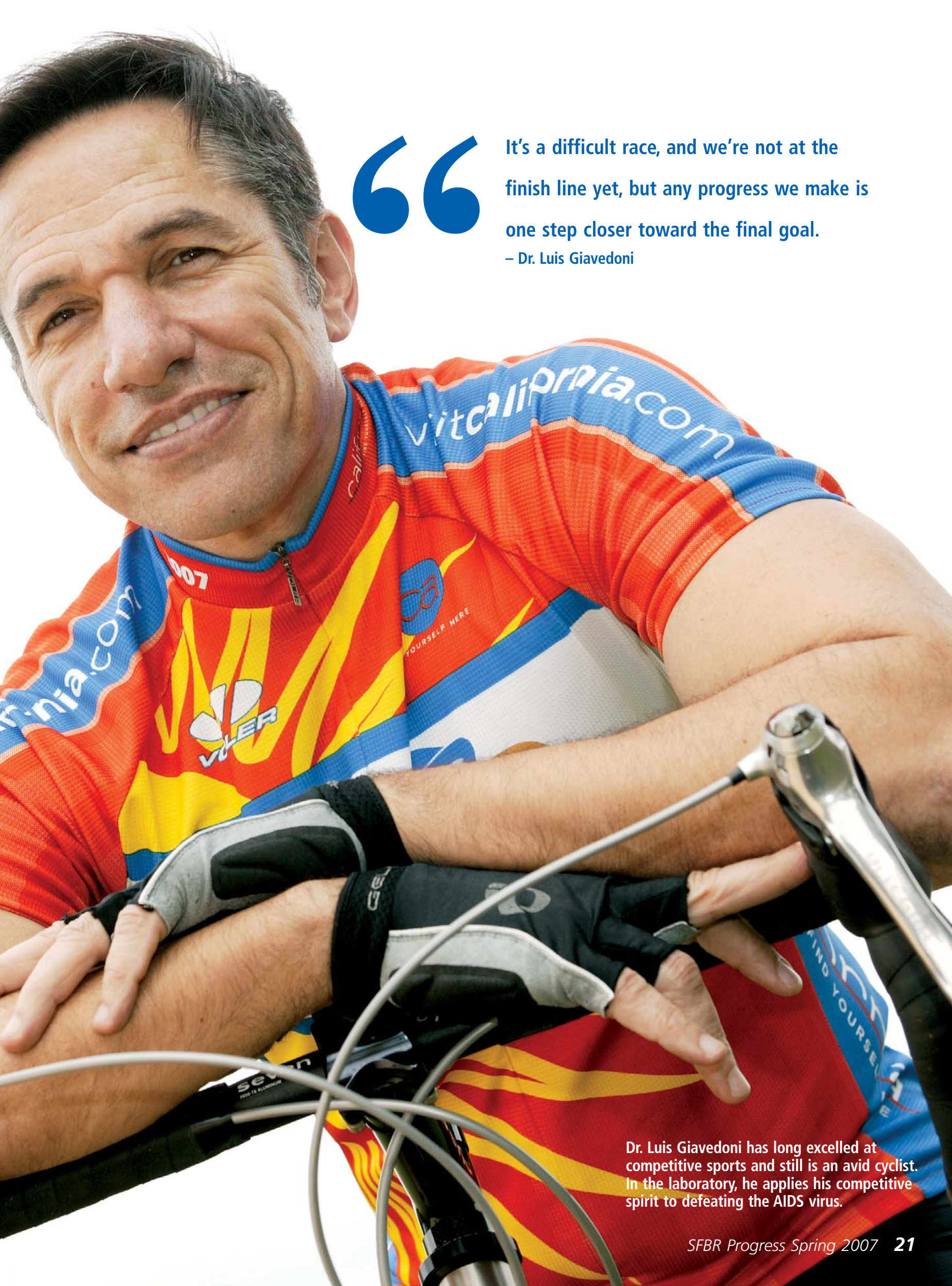
So we are not developing a live attenuated vaccine for use in humans, but we’re working with it in monkeys to study the kind of immune response it triggers. We’re looking for features that you can identify in a vaccine that tell you whether it will protect an individual against future exposure. Then we can try to develop other, safer types of vaccines that trigger the same immune response.

Together with colleagues from Yale and Northwestern University, we also have developed and are testing a potential DNA vaccine that uses portions of SIV. After several inoculations, we couldn’t see much of an immune response in monkeys, so we tried to boost the animals’ immunity with a vaccine based on a poxvirus – a type of AIDS vaccine that currently is in human clinical trials. Animals that received both vaccines responded more strongly than those that received only one. So it seems that the DNA vaccine helps prime the immune system to enhance the effect of the pox vaccine. When we challenged six animals that had received both vaccines with SIV, four were protected. That’s an encouraging result. Now we’re trying to find ways to modify the DNA component so that it stimulates an improved immune response.

In addition to your own studies, aren’t you using your expertise in immunology to support other scientists’ investigations?

Yes. For example, we collaborate with Jon Allan here at SFBR to help uncover why African nonhuman primates can live with SIV without

Continued on page 22



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It's a difficult race, and we're not at the finish line yet, but any progress we make is one step closer toward the final goal.

– Dr. Luis Giavedoni

Dr. Luis Giavedoni has long excelled at competitive sports and still is an avid cyclist. In the laboratory, he applies his competitive spirit to defeating the AIDS virus.



Dr. Luis Giavedoni points out his homeland of Argentina on a globe at the Institute of Texan Cultures following a ceremony where he was awarded U.S. citizenship in 2005. MIDDLE: A competitive athlete since his youth, Luis Giavedoni is shown here with members of his college basketball team in the early 1980s. RIGHT: Dr. Giavedoni and his family, who enjoy traveling, have fun on a trip to see the Mayan ruins at Chichén Itzá, Mexico.

Giavedoni, continued from page 20

developing AIDS, while infected Asian monkeys do develop disease. Working with Jon, we've seen some striking differences between the two species. The idea is to use that knowledge to find effective ways to alter immune response in humans to prevent illness.

On a different front, my laboratory is collaborating with Dr. Peter Nathanielsz at the University of Texas Health Science Center at San Antonio in his studies on reproductive physiology. We've been looking at immune development in pregnant baboons and their fetuses when they are exposed to glucocorticoids. These are steroids given to women before they go into pre-term labor to induce pulmonary maturity, but sometimes there are problems associated with the treatment. We've assisted Dr. Nathanielsz by looking at the effect on the immune system.

Your laboratory also runs the flow-cytometry core facility for the Southwest National Primate Research Center. Explain how that works.

We quantify cytokines and chemokines – proteins that regulate immune response – in nonhuman primate species using the Luminex. The Luminex is an instrument that allows you to identify and quantify a large number of molecules in a single compound, which is beneficial when your samples are very small in volume. My group has developed a number of reagents that can identify 32 cytokines and chemokines in fluids from several nonhuman primate species, and we use these to test samples from investigators here at SFBR and from all around the country.

Why is that important?

The best way to explain is with an example. We collaborate with Dr. Jacqueline Coalson, who leads investigations on lung disease and other problems that can affect premature infants, using the premature baboon model. She has given us bronchial samples from premature baboons that have been on ventilators as well as from other animals

that have been treated with a method called nasal CPAP, which simply uses a mask. In these samples, we measured the concentration of inflammatory cytokines, and we showed that intubation of babies induces more complications than nasal CPAP. Perhaps this will help encourage human hospitals to use nasal CPAP to treat preemies.

What led you into AIDS research? Has it always been your focus?

I backed into it after helping to develop an effective vaccine against another viral disease. I did my postdoctoral studies and then became an adjunct assistant professor at UC Davis, where my mentor was Dr. Tilahun Yilma, now a member of the National Academy of Sciences. We developed a vaccine for rinderpest, the German word for cattle plague. The rinderpest virus causes a very lethal infection in cattle. It's mortality rate is 90 percent. It's not found in the Americas, but it is in Asia and Africa.

I made a recombinant poxvirus that had two genes from rinderpest, and that was incorporated into a vaccine that proved to be 100 percent effective. In tests at Plum Island Animal Disease Center in New York, vaccinated cows that were challenged with rinderpest were completely protected from infection.

Following our success with the rinderpest vaccine, we started working on a potential AIDS vaccine that used a similar approach.

Didn't your work with the rinderpest vaccine lead to a prestigious award from the American Society for Microbiology?

Yes. The ASM has an annual meeting called ICAAC – Interscience Conference on Antimicrobial Agents and Chemotherapy – and each year at the meeting they give out a Young Investigator Award to four recipients. I was selected in 1992. This was a nice honor for a proud achievement, but it was especially valuable in helping me stay in this country. My family and I came to the United States from Argentina for my postdoctoral research, and this award helped me gain residency



Dr. Luis Giavedoni and his wife, Laura Parodi, have worked together in Argentina, California and now at SFBR.

status so I could continue my career here. The award showed the country that I could produce something useful.

You received U.S. citizenship in late 2005. Why did you decide to seek that status after so many years in the United States?

This is now home to my family and me. My youngest daughter was 1 when we moved here. Now she is 19. This is the home she and her sisters know. It's also where I have grown professionally. I've been accepted here, and I like it here, so it seemed like a natural step. Being a citizen also allows me to vote and to have a say in how things are decided around me.

You mentioned your family. You and your wife, Laura, have four beautiful daughters who must be a great source of pride for you.

Oh, yes. Veronica is 25 and working in Austin as a graphic designer. Florencia is 23 and working for an accounting firm. The younger two are still in college. Alejandra is studying fashion merchandising, and Carolina is majoring in communications.

None of them wanted to go into science, even though I tried to persuade them. I used to bring them into the lab to look through the microscope when they were younger, but they never developed any interest. I can understand that. My father was a lawyer and my mother was a high school math teacher. I never considered either of those professions. And my younger brother is an architect. We all like different things.

Yet your wife works with you in your lab.

Yes. Laura and I met in college in Argentina. She was studying chemical engineering at the time and has always had an interest in laboratory research. When we moved to Buenos Aires for my doctoral program, she worked with me in the lab there. Later, she joined me at UC Davis, and now she works here at SFBR. People ask how we can be married and also work together, but it's not as though we're over each other's shoulder all the time, even at work. And outside of work, we have things we enjoy doing

together, but we also have our own interests.

One of your main interests is bicycling, isn't it?

Cycling is something I really enjoy, although I got into it later in life. I grew up as a competitive athlete. In volleyball, I was good enough to earn a spot on Argentina's national team when I was 18. I didn't play in the Olympics, but I did play in the South America Volleyball Championship. I reached my peak, though. I'm tall at 6' 2", but nowadays, my position is played by people who are 6' 10" or taller.

In basketball, I made it to my hometown's All-City Team, which represented the city in the Provincial Championship. That was as far as I got.

When we moved to California, I continued playing volleyball, and I joined in the running craze. I ran several half-marathons and even the Sacramento Marathon once. But I finally had to give all that up. A previous sports injury in which I had dislocated my hip, and then all the years of high-impact sports, led to arthritis in my right hip. I didn't know what I was going to do until someone suggested cycling.

Cycling has been good for me in Texas, opening up the Hill Country for me. I joined the San Antonio Wheelmen, and we take small country roads to many beautiful places I wouldn't have seen otherwise. I'm still competitive and push myself at cycling. I've done the MS150 Bike to the Beach once and the Lance Armstrong Foundation's Ride for the Roses several times. My favorite ride is in West Texas at Cyclefest at Fort Davis. It's a 75-mile loop that goes up and down the Davis Mountains. It's a hard ride, but it's beautiful. The following day, just for fun, I do another ride that is a seven-mile climb from the valley to the McDonald Observatory. That kills you.

Is it your competitive nature that keeps you in the long, hard fight against the AIDS virus?

Yes, I like the challenge. It forces you to be creative, always thinking of possible new approaches. It's a difficult race, and we're not at the finish line yet, but any progress we make is one step closer toward the final goal.

*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 Argyle, the Southwest Foundation Forum, and the Founder's Council.

The Golden Circle

Members of the Golden Circle, Benefactor Circle, President's Circle, and Chairman's Circle are among SFBR's closest friends and supporters. Each year, they make contributions of \$1,000, \$2,500, \$5,000 and \$10,000, 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 life-saving research projects.

To thank our partners in progress for their generosity, SFBR invited Golden Circle members and capital campaign contributors

The Golden Circle

to attend an evening reception and tour of its newly renovated Earl Slick Center on March 26. The evening, described in greater detail in an article beginning on page 6 of this issue, was a celebration of the dramatic improvements donors have enabled on the SFBR campus – improvements that better equip SFBR scientists in their vital mission to improve human health through innovative biomedical research. ***Some memorable photos from the evening are provided on the following page.***

If you would like to become a partner in scientific progress through membership in the Golden Circle, fill out and return the form provided on this page, or contact Corbett Christie, SFBR's chief development officer, at 210-258-9870. You also can learn more about the Golden Circle and join online at http://www.sfbr.org/pages/support_circle.php.

To speak with Corbett Christie about giving opportunities, contact him at 210-258-9870 or cchristie@sfbr.org.

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Individuals, companies and foundations may become members of the Golden Circle by making an annual contribution at one of the following levels.

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Southwest Foundation Forum

Spirited efforts focus on education and fundraising

ABOVE: The Forum awarded its Science Education Awards on March 28. Shown here are: (front, L-R) Robin Williams, Byron P. Steele High School, third place; Lynn Lynch, principal, and Jennifer Bessonette, G.W. Brackenridge High School, second place; (second row, L-R) Brother Stanley Culotta, principal, Holy Cross High School; Lawrence Rinehart, Cotulla High School, first place; Yolanda Woods, Holy Cross High School, fourth place; (back row, L-R) Valerie Guenther, V.H. McNutt Memorial Foundation, co-sponsor of the awards; Ann Reeks, SFBR liaison to the Forum; Dr. Harald Göring, an SFBR scientist on the panel of judges; and Lacey Neuhaus Dorn and Dottie Cooper, Forum members who co-chaired the Science Education Awards program.

BELOW: Forum members enjoy social time before the Spring Lecture Luncheon.



Education is a key component of the Southwest Foundation Forum's mission, and it has been a major focus of the group's activities this spring.

From January through March, the Forum hosted tours of Southwest Foundation for Biomedical Research, welcoming upperclassmen from 10 area high schools for a video overview of SFBR and its research programs, a bus tour of the Southwest National Primate Research Center, and a sit-down session with a member of SFBR's esteemed faculty. Through this unique exposure to one of San Antonio's research jewels, the Forum hopes to open students' eyes to the exciting possibilities of a career in science.

At the March 28 Forum Lecture Luncheon, the focus was on the education of Forum members and high school students alike. Psychologist Theresa Moore served as guest speaker, delving into the topic of "The Power of Two: The Impact of Relationship." While serving as an informative luncheon for Forum members – as well as an occasion to build relationships with one another – the event also celebrated the distribution of Science Education Awards to several area high schools. Recipients were selected by a panel of SFBR scientists, Forum members and a representative of the V.H. McNutt Memorial Foundation, a co-sponsor of the program. All received grants to support innovative programs that further students' interest in and knowledge of science.

This year's award-winning schools were Cotulla High School, first place; George W. Brackenridge High School, second place; Byron P. Steele High School, third place; Holy Cross High School, fourth place; and Keystone School, honorable mention.

Sights set on 2007 Gala

Now the Forum is geared up for its premier event, the 2007 Gala, scheduled for May 5 at The Argyle. Co-chairs Terry Gouger and Jean Mitchell, Gala Assistant Julie Zacher, and an impressive volunteer committee have planned a glamorous evening that they hope meets and exceeds the success of previous galas, both in terms of fun for guests and dollars raised to fund pilot research studies by SFBR scientists.

With the theme "Mystical Living Gardens," they promise an intriguing evening of fun-filled games, delicious cuisine, spectacular prizes, and lively dancing to the sounds of "Sauce." The dinner for this highly anticipated event is sold out, but \$75 tickets may still be available for the After Party, which includes games, cocktails and dancing.

The Forum also has initiated a Gala Grants program this year, allowing contributors to make 100-percent-tax-deductible donations directly toward Forum grants to SFBR scientists.

To purchase a ticket to the Gala After Party, make a donation to the Gala Grants program, buy raffle tickets, or volunteer with set-up or games, contact Terry Gouger at 210-826-6475 or tgouger@hotmail.com. Checks for donations made out to the Southwest Foundation Forum may be mailed to her at 711 Contour Drive, San Antonio, TX 78212.

For information on Forum membership and activities, visit the group's Web site at www.swff.org, or contact Ann Reeks at 210-258-9419.

The Founder's Council

Rewards of membership benefit scientific research

The winter holidays have come and gone, but the season's positive impact will be felt by SFBR scientists for a long time to come. That's because the Founder's Council used its 2006 Holiday Party to award grants totaling nearly \$30,000 to seven SFBR scientists for the purchase of equipment that enables their vital research.

The Founder's Council's premier grant, named the Steves Award in honor of the late Albert Steves IV, went to Dr. Susan Mooberry in support of her cancer drug discovery program. The gift enabled the purchase of a machine to freeze dry plant samples used in her hunt for more effective and less toxic cancer-fighting drugs. Other grant recipients were as follows:

- Dr. Laura Cox, for laboratory supplies needed to analyze cholesterol data as she works to define the genetic response to dietary fat;
- Dr. Marie-Claire Gauduin, for a cell-counter system that will benefit her AIDS research;
- Dr. Lorena Havill, for a bone saw used in her research on genetic contributors to osteoporosis;
- Dr. Ricardo Carrion Jr., for a documentation system that captures images for use in research on potential bioterror agents, Ebola and avian flu;
- Dr. Melissa de la Garza, for a portable electrocardiogram machine used to diagnose heart disease in SFBR chimpanzees;
- Dr. Rebeca Rico-Hesse, for a machine that measures skin hemorrhagic manifestations of dengue fever.

The highlight of the Founder's Council year, the Holiday Party was all the more special in the lovely setting of the Tobin Estate. Many thanks go to event the sponsors – the Tobin Endowment; Balance Ventures, LLC; and Fisher, Herbst and Kemble, P.C. (Certified Public Accountants) – as well as corporate sponsors of other Founder's Council events during the year. Their generosity allows the Founder's Council to apply membership dues toward an increasing level of grant awards each year.

The Holiday Party also served as the occasion for the Founder's Council's "changing of the guard." Matthew Bell, 2006 president, extended thanks to outgoing Past-President Kevin Kennedy, not only for his recent leadership, but also for his years of dedication to the council as one of its founding members. Bell then stepped into the role of past-president himself as he introduced Liesl Noble as president for 2007.

Under Noble's leadership, 2007 is off to a great start. The Feb. 14 Lecture Luncheon at The Argyle featured Founder's Council grant recipient Dr. Lorena Havill, who gave members motivation to eat a healthful diet rich in calcium and make



Honored at the Founder's Council Holiday Party were Kevin Kennedy, retiring from his 2006 post of past president; Liesl Noble, 2007 president; and Matthew Bell, 2006 president stepping into the role of past president for 2007.



Martha Steves (right), wife of the late Albert Steves IV, presents the Founder's Council's Steves Award to Dr. Susan Mooberry to support her cancer drug discovery program at SFBR.



Founder's Council guests enjoy the 2006 Holiday Party at the Tobin Estate.

weight-bearing exercise part of their regular routine. These are two key recommendations for preventing osteoporosis, or "fragile bone disease," the focus of Dr. Havill's research. Thanks go to the BMW Center and Browning Construction Co. for sponsoring the event.

The Founder's Council also has kicked off its 2007-2008 membership drive as it invites members to an evening tour of SFBR on May 16. For information on membership and events, visit www.sfbr.org/pages/founder_council.php, or contact Amy Abdalla at 210-258-9409 or amy@sfbr.org.

Reflections of your giving image

Consider values-based giving

by Corbett Christie, Chief Development Officer

When you look in the mirror, is there a philanthropist looking back at you? What best describes your charitable actions in the past year? Were they deliberate or unplanned? Were they your first venture into charitable giving or the continuation of years of giving? Were they inspired by a plan based on your value system?

Many individuals generously support charitable organizations like ours, but the majority of people don't give in a planned way. They make donations, yet they are not seeing the big picture – the benefit of being a part of something greater than they alone could ever hope to achieve in perpetuating their personal value system. Most people will tell you they want to leave the world a better place than they found it, yet few actually have a plan on how they can achieve this goal.

One solution is values-based philanthropy. Values-based philanthropy allows you to reflect on personal interests and values in supporting charitable organizations – such as Southwest Foundation for Biomedical Research – that share those values.

It is clear that every person living today has benefited from medical research and innovation of years past. The research that goes on every day in the laboratories of SFBR

will be the innovation that enriches the health and lives of future generations. Your support today will help ensure that our goals are met and our mission is advanced. To some donors, this is giving back, and to others, it is a meaningful investment in the health of their children and grandchildren and future generations.

Values-based philanthropy is an excellent way to leave an ongoing legacy. The values-based approach also can lead to a multigenerational legacy of giving. Children can become involved and help with decisions that improve health and ease hardships – definitely an opportunity for character building.

The best payback of all, of course, is the satisfaction realized by the act of giving, of being a part of a greater cause. Such shared gifts leave a lasting reflection of your life and beliefs.

Please call Corbett Christie at 210-258-9870, or e-mail him at cchristie@sfbr.org for more information.

Southwest Foundation for Biomedical Research Donation Form

Your tax-deductible donation will support SFBR's research programs in cancer, genetics, heart disease, infectious diseases, perinatal care, pulmonary diseases and many other areas of research. (Please type or print clearly, as donors and honorees are listed in our publications.)

I wish to make a donation to the Southwest Foundation for Biomedical Research in the amount of:

\$ _____ (Please enclose your check made payable to Southwest Foundation for Biomedical Research.)

My donation is for: _____

Memorial

In memory of _____

Special Occasion (Please list occasion and honoree.)

In honor of _____

General Contribution

Name to be listed as the donor:

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Send an acknowledgement card to:

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Please mail a copy of this form with your check to:

Attention: Chief Financial Officer

Southwest Foundation for Biomedical Research

P.O. Box 760549

San Antonio, TX 78245-0549

***Thank you for your contribution to
improve the health of humanity!***

To make a donation online, go to www.sfbr.org and click on "Support SFBR/Make a Contribution"

About Southwest Foundation



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 the fight against 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.

Other extraordinary resources at SFBR include the nation's only privately owned BSL-4 laboratory, a critical asset to research related to biodefense and emerging infectious diseases, and the AT&T Genomics Computing Center, which houses the world's largest parallel computing cluster for genetic 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 advancing the health of our global community through innovative biomedical research. For more information, please contact the Foundation at 210-258-9400, or visit our Web site, www.sfbr.org.



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