Forum in Focus

SPRING 2014

President's Letter

Happy Spring everyone! After such an uncommonly cold Texas Winter, I know that we all are looking forward to the wonders of Spring.

Cathryn Le Vrier

Thanks to all the hard work and vision of each of our Trustees and many members, Texas Biomedical Forum had one of its most successful years yet!

March kicked off our membership drive for the year . . . and many of you have already renewed. For those of you that haven't, please plan to do so before Spring rushes into Summer and we all go our separate ways. This organization truly could not accomplish all that it does without the dedication of its members. Membership Chair, **Amanda Bezner**, has worked tirelessly to strengthen our membership and enable it to grow. Her willingness to put together a master mailing list that included 1,700 prospects for renewal or new membership is much appreciated.

On March 26th we had our annual Spring Lecture Luncheon and Science Education Awards at The Argyle. **Melissa Morgan** and **Courtney Ogle** coordinated a successful event (despite stormy weather) where guests were able to hear Dr. Ruth M. Ruprecht discuss the amazing progress on AIDS research that has been accomplished under her supervision.

The purpose of the Texas Biomedical Forum is to support the Texas Biomedical Research Institute through community relations, volunteer service and fundraising.

Also at the luncheon, our Science Education Awards winners were announced. Many local high school teachers compete for these grants by submitting applications outlining a specific project or study they hope to implement in their classes with the award money. It's amazing to hear about these innovative projects each year and to realize these teachers are true champions for our kids, as well as the future of science and research. In fact, this year, for the first time, we had a middle school apply. Although this falls outside the criteria for application, Valerie Gunther generously awarded the middle school a grant to allow them to fulfill their project! **Jody Lutz** and **Sara McCamish** chaired the awards process, and with the help of a panel of scientists from Texas Biomed, awarded 6 schools with monetary prizes. You can read more about the winning schools later in the newsletter.

The Spring marked the conclusion for the year of our student tours of Texas Biomed. The success of the student tours was dependent on the hard work of so many of you. **Ann Walton** and **Christina Mayer** lead the charge and ensured that this project was an enormous success. From scheduling with the schools to coordinating with Texas Biomed and coordinating volunteers . . . not a stone was left unturned and all the effort resulted in fantastic experience for all.

Also in March, Neiman Marcus hosted a fun fashion preview at Mariposa! Members sipped champagne, chatted and watched elegant models glide through the room in the latest fashions. Many thanks to Tom Wensinger and Xitlalt Herrera-Salazar of Neiman Marcus. Their continued support and dedication to the Texas Biomedical Forum helps to make each year's Gala incredibly special.

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— President's Letter —

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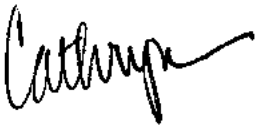
And last, but never least, we conclude our membership year with the annual Gala! On Saturday, May 3, guests will be transported to Tuscany as they enjoy La Dolce Vita, Una Magica Notte in Tuscana! Gala Chairs, **Daniela Serna** and **Ashley Hixon**, along with **Jordan Arriaga**, Gala Assistant, have stunned us all with their incredible ideas, dedication and creativity! They assembled an amazing group of committee members and have beat all past records for table sales, gala grants, raffle and much, much more! I'm salivating just thinking of the great treats that await us all that night.

It has not only been an incredible year for the Texas Biomedical Forum, but also it has been an absolute honor to be President of this amazing group of women. I have made many new friends, strengthened relationships with long-time friends and reconnected with long lost friends. I am so proud to be associated with the Texas Biomedical Forum and all the hard work it has done for the past 43 years. Thank you to each one of the Trustees who agreed to lead the membership and transform all of our passion for the cause into an amazing contribution to Texas Biomedical Institute. There is no better feeling in the world, for me, than to know I've contributed to an organization that is truly making the world a better place!

Passing the gavel in May to Melissa Morgan will be a pleasure! Melissa is an amazing woman with strong vision and a propensity for making everything she touches stronger and more beautiful. I've had the pleasure of working with Melissa through the Forum for years and am delighted that she will be the next President, leading us all into an even brighter future.



Cathryn Le Vrier
President 2013-2014

SCIENCE EDUCATION AWARDS

For the past twenty years, the Texas BioMedical Forum and the V.H. McNutt Memorial Foundation have joined forces for the Science Education Awards. Local public and private high school teachers are invited to participate. The awards are given to the top six teachers whose proposals demonstrate the strongest commitment to the scientific process and the further development of progressive science education programs. The competition was incredibly intense this year as the number and caliber of applications increased dramatically.

The winners are determined by a panel of judges including Science Education Awards founder, Valerie Guenther representing the V.H. McNutt Memorial Foundation; Jody Lutz and Dr. Sara McCamish, representing the Forum and serving as Science Education Awards Coordinators. The panel was rounded out by Texas Biomed scientists Dr. Jera Pecotte and Dr. Michael Owston. As always, we wish to thank Valerie Guenther of the V.H. McNutt Foundation, for her time and continued support of this program.

Annually, over $20,000 is awarded jointly by the Texas Biomedical Forum and the V.H. McNutt Memorial Foundation. Additionally, due to a generous donation by the L.D. Ormsby Foundation the first ten teachers to submit proposals received a $50 personal stipend. A $200 participatory grant was also provided to schools who did not receive a placed award. Participant grants were given to: Alamo Heights, Tom C. Clark and Robert E. Lee. The Keystone School was awarded two grants.

Additionally, the V.H. McNutt Memorial Foundation provided funding to an outstanding middle school application from Adam Schaab at Sol Ross Middle School. His project titled, "Force and Motion Reinforcement" is the first middle school project to be recognized in conjunction with the Science Science Awards.

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The 2014 Science Education Awards winners:

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1st place
$7000
Brooks Academy
Jose Ayala

Traditional Mexican Medicine: Using DNA Bar Coding to Help Identify and Compare the Accuracy of Actual Herbs in Prepackaged Herbal Tea “Te Nervina” to Those Listed

2nd place
$5000
McCollum High School
Andrew Martinez

Cellular Respiration in Multi-cultural Organisms

3rd Place
$3500
McCollum High School
Edward Kinnear

Prosthetic Robotic Hand Build Off

4th place
$2500
STEM Academy at Robert E. Lee High School
Robin Howard

Can Current Hydroponic Systems Be Used to Determine the Synergistic/Allelopathic Effects of PGRs?

5th place
$1500
Young Women’s Leadership Academy
Nina Slote

Growing Environmental Literacy in a Greenhouse

Honorable Mention
$500
Samuel V. Champion High School
Eric Madrid

Renewal of Outdoor Research Facilities

TEXAS BIOMEDICAL FORUM GALA 2014:

LA DOLCE VITA

Una Magica Notte in Toscana

Let us whisk you away to Tuscany as we celebrate the 2014 Texas Biomedical Forum Gala at The Argyle on Saturday, May 3rd at 6:00 p.m. This year's Gala promises to deliver new and exciting affairs that will freshen this cherished evening. Take pleasure in the Tuscan atmosphere presenting cocktails and hors d'oeuvres, as well as many intriguing happenings in which to partake.

If your Gala plans have not been made, please join us for the fabulous After Party starting at 9:00 p.m. that promises to impress! After Party tickets are available for purchase on-line at www.txbiomed.org/forum. DJ Lucy will be back to keep the night moving on the dance floor and the evening has many attractions *preparatoa in anticipo!*

Raffle tickets are ESCLUSIVOA this year! Capped at 250 available raffle tickets and 4 available prizes, your chances are high! This year, the best educated guessers win – not just luck. Offering a 'Chance to Win' a Lexus IS250 as the Grand Prize for the correct guess of pennies in the clear case (generously provided by North Park Lexus of San Antonio) with 3 additional prizes to win! If you are the closest guesser, you will win the Fabulous 4 night / 5 day with roundtrip airfare Trip for Two to a Montage Hotel & Resort of your choice in Beverly Hills, Deer Valley or Laguna Beach (generously provided by Herff Travel and Montage Hotels & Resorts)! Two other close guessers will win a Weekend in a Lexus! WOW . . . so many prizes and such excitement! The correct number of pennies in the case will be revealed at the Gala – you could be one of the winners!

A change at this year's Gala . . . anticipate our premiere silent auction with exclusive packages that include The Argyle, Julian Gold, Lee Michaels Fine Jewelry, Neiman Marcus, Paloma Pachanga + Satel's, Saks Fifth Avenue and Shetler Wade Jewelers. Come prepared with your best bids for a great dinner party at The Argyle, a trip to New York plus Fashion Week tickets courtesy of Julian Gold, a custom men's Canali suit & a custom woman's Cavalli outfit courtesy of Neiman Marcus, to name a few!

The 2014 Gala Committee is working diligently to make this year's Gala an unforgettable evening for all, however always remembering our cause – to fund pilot studies at the Texas Biomedical Research Institute, so that impressive medical research questions can be studied and cures / vaccines/genes can be found. This is why we all support this event and we thank you for your support, sponsorship, donations and participation.

Lexus IS 250

Montage Hotel & Resort

Forum Grants for 2014 Gala

As of today, we have raised $61,150 in forum grants! This makes 2014 one of our largest grossing grant years! Congrats to Sara Walker for all her hard work to make this happen.

FUN FACT

SPRING LECTURE LUNCHEON AND SCIENCE EDUCATION AWARDS

This year's Spring Lecture Luncheon and Science Education Awards was held on March 26th at the Argyle. The luncheon was a great success with the announcement of our Science Education Award winners, followed by a very informative and interesting lecture.

Dr. Ruth M. Ruprecht was our featured Spring luncheon speaker, presenting "Are Antibodies Against the AIDS Virus Good Guys or Bad Guys?" Dr. Ruth Ruprecht, recently recruited to the research faculty at Texas Biomed from Harvard University Medical School and Dana Farber Cancer Center, gave an illuminating and encouraging report on her team's research to develop an effective vaccine for HIV/AIDS.

Dr. Ruprecht directs a multi-institutional AIDS research program that involves collaborators in the United States, Europe, and Africa. Her expertise is in AIDS vaccine development and in diseases caused by so-called 'slow' viruses because they can remain inactive for several years.

"We have discovered a new mechanism by which certain antibodies can prevent AIDS virus infection in monkeys," Ruprecht said. "Joining Texas Biomed gives my group a wonderful opportunity to collaborate closely with experts in primate medicine at the Southwest National Primate Research Center. Together, we can really accelerate progress."

It was an interesting topic for discussion and it was very exciting to find out about Texas Biomed's involvement in this promising area of medicine.

Spring Gala Fashion Show Huge Success

The Spring Gala Fashion Show held at Neiman Marcus on Thursday, March 20, 2014 was a huge success with nearly 60 women in attendance! We learned about Spring fashion trends (think pink, denim on denim and mixing prints), and we got to preview gorgeous gowns for this year's gala theme: La Dolce Vita! Attendees sipped on berry filled proseccos, tasted delicious Italian inspired hors d'oeuvres, freshened up at the Trish McEvoy make-up counter and spritzed delectable perfume at the Tom Ford counter. We also got a special preview of Neimans' donation to the Gala's Premier Silent Auction this year: Come ready to bid on an amazing custom men's Canali suit and an awesome custom woman's Cavalli outfit plus a wonderful shopping experience at Neiman Marcus San Antonio!

An exciting and surprising component of this Fashion Show was the announcement of the Chance To Win Raffle that will help support the Gala this year! Purchase your ticket for a chance to win

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Spring Gala Fashion Show

(Continued from Page 5)

either a Lexus IS250, a trip for two to a Montage Hotel & Resort property of your choice in Beverly Hills, Deer Valley or Laguna Beach (roundtrip airfare, airport transfers, 4 nights/5 days), or two opportunities for a Lexus for the weekend. Our very generous sponsors of the raffle include North Park Lexus of San Antonio, Herff Travel and Montage Hotels & Resorts.

Thank you to everyone that attended this event and a very special thank you to Neiman Marcus San Antonio for their continued and very generous support of the Texas Biomedical Forum!

Texas Biomed Updates

TEXAS BIOMED DEDICATES EARL SLICK RESEARCH CENTER, A NEW 70,000 SQ. FT. LABORATORY AND SCIENTIFIC SUPPORT BUILDING TO EXPAND RESEARCH

The Texas Biomedical Research Institute's new $27-million science complex, funded entirely by donors, was dedicated on March 27, 2014. The center is part of a campus master plan that includes a major effort to recruit world-class scientists, enhance existing research programs and initiate new ones to accelerate the pace of discovery.

Elements of the expansion plan include recruiting additional faculty members in the Genetics and Virology and Immunology departments and the Southwest National Primate Research Center. The goal of these recruitments will be to promote the translation of discoveries into medical applications. Texas Biomed also plans to expand its regenerative medicine program to advance the effort to repair tissue in people with a variety of conditions and illnesses. This effort, which will involve recruiting two additional researchers, will include collaborations with other investigators in San Antonio.

The new building will provide an attractive "front door" for Texas Biomed and represent the public face of the campus. The laboratory and office building will consist of 15 research laboratories, shared instrument rooms for these laboratories, and equipment and service space. The complex also will consolidate researchers and laboratories now housed in multiple buildings around the campus and will substantially increase efficiency of research through shared staff and equipment. The building will provide space for a number of nationally prominent visiting scientists who will collaborate with Texas Biomed researchers. And it will serve as a visible focal point for the SNPRC, one of only eight such centers in the United States and the only one in the Southwest.

The design of the new headquarters honors the legacy of founder Tom Slick and his family, and adds a new level of detail and artistry to the campus with its use of tilt-wall construction for the new building's facade. The building's shape, orientation, and systems also work together integrally to reduce overall energy use. Projections show the new structure will operate at over 20 percent better efficiency than current building codes require. This energy efficiency combined with other environmentally appropriate decisions with respect to the site design, water consumption, building materials and in-door environmental quality – have the project tracking to achieve certification from the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) rating system. The glazed lobby windows contain images unique to Texas Biomed including Tom and Earl Slick, animal models, and distinguishing research facilities.

The new Earl Slick Research Center was dedicated on March 27, 2014. The $27 million building was entirely donor funded. With 70,000 sqare feet, the laboratory and office complex is part of a campus master plan that includes a major effort to recruit world class scientists and to enhance and extend research programs to speed the effort to find the underlying cause and potential treatments for a wide variety of diseases. The recruitment effort includes Robert Davey, Ph.D., and Ruth Ruprecht, M.D., Ph.D. in the Department of Virology and Immunology and Michael Olivier, Ph.D., in the Department of Genetics. Other recruitments are underway, including two researchers in the area of regenerative medicine. All of these efforts enhance Texas Biomed's global impact in developing new pioneering scientific initiatives that lead to cures and promote the translation of discoveries into medical progress.

The new facility will be important to staff and will be an exciting mechanism for retention and recruitment of world-class scientists. Among the major goals are to replace aging SNPRC facilities; provide a comfortable, attractive facility for Texas Biomed and visiting scientists; bring together administrative offices and laboratories that are currently spread across the campus; and create a building with a bold design that is in keeping with current campus materials and aesthetics while making the best use of the Institute's finances.

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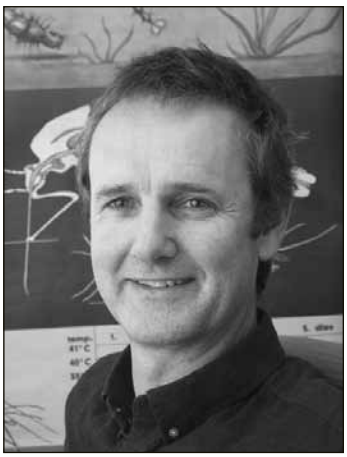
(Earl Slick Research Center Dedication Continued from Page 7)

The campus master plan also envisions projects that will address needs far into the future – as much as 25 years – a significant planning horizon, considering the blistering pace of innovation in science. The plan includes support infrastructure – engineering, energy, utilities, communications, and transportation – and provides more open, green, and pedestrian-friendly spaces. This also will involve a rearrangement of the campus with a new entrance and new courtyard and common areas that will make Texas Biomed a more aesthetically pleasing place to work and visit.

NEW STUDY OF HUMAN BLOOD FLUKE PARASITES IDENTIFIES DRUG RESISTANCE MUTATIONS; RAISES HOPES FOR IMPROVED THERAPIES



Tim Anderson, Ph.D.

An international group of scientists led by Tim Anderson Ph.D., at the Texas Biomedical Research Institute and Philip LoVerde Ph.D., at the University of Texas Health Science Center at San Antonio has identified the mutations that result in drug resistance in a parasite infecting 187 million people in South America, Africa and Asia. The new finding allows detailed understanding of the drugs' mechanism of action and raises prospects of improved therapies.

"This is a major advance," said Claudia Valentim, Ph.D., the primary author of the report, who worked at both institutions. "We were able to identify the critical gene by crossing resistant and sensitive worms in the laboratory and then analyzing the genomes of the progeny. This method is commonly used for fruit flies and other laboratory organisms, but has not previously been possible for schistosome parasites."

"This really shows the utility of genome sequencing," says Anderson. "The schistosome genome was published in 2009. Without the sequence, the work would have been painfully slow."

The new study – funded by the National Institutes of Health (NIH), the World Health Organization, the Wellcome Trust and the Robert A. Welch Foundation – appeared in the journal Science.

Adult schistosome parasites are half an inch long and live in the human blood vessels, laying thousands of eggs, many of which become lodged in the liver or bladder wall, causing portal hypertension, liver failure and bladder cancer. "We don't know the death toll from these parasites," says LoVerde, "but our best estimate is that more than 200,000 people die every year from this infection in Africa alone, making this parasitic disease second only to malaria in terms of mortality."

No vaccine exists for schistosomiasis, so this disease is controlled using drug treatment, which must be repeated periodically because people become reinfected through contact with water where the intermediate snail hosts live. The problem is that there are very few effective drugs available.

The drug oxamniquine, the subject of this research, kills just one of the three species of schistosome parasite that infect humans. The research raises hope that this drug can be redesigned to kill the two major schistosome species responsible for 99 percent of schistosomiasis cases worldwide.

John Hart, Ph.D., a key collaborator on this study from the Health Science Center, explains: "By using X-ray crystallography and computational methods we were able to precisely pinpoint how the drug interacts with the critical protein in one Schistosome

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(New Study of Parasites Continued from Page 8)

species, and to identify the key differences in this protein in the related parasite species. With some targeted chemical modification, we think it will be possible to make a drug that kills both major schistosome species. This is what we are working on now."

Only one drug currently is available for treating schistosomiasis and resistance has been reported, so new drugs are urgently needed.

Co-authors on the paper were from Britain, Italy and the University of Texas at San Antonio. They included Frédéric Chevalier, Ph.D., and Marcio Almeida, Ph.D., of Texas Biomed; and Alex Taylor, Ph.D. and Xiaohang Cao, M.D. of the Health Science Center.

NEW BABOON STUDIES MAY HELP EXPLAIN WHY SOME PEOPLE WHO TAKE DRUGS FOR OSTEOPOROSIS ARE AT RISK FOR LEG FRACTURES

Research with baboons at the Texas Biomedical Research Institute may help explain why some people who take bone-strengthening drugs like bisphosphonates are at risk for atypical fractures in the long bones in their legs.

Texas Biomed scientist Lorena M. Havill, Ph.D. and colleagues at the Southwest Research Institute and Indiana University examined femurs of deceased baboons and found differences in the microstructure of their femurs that she traced to genetic variation among the animals. The study supports the theory that genetic variations may regulate bone remodeling, a natural process during which mature bone tissue is removed from the skeleton so that new tissue can be added. These genetic differences could explain why a small percentage of older women suffer a distinct type of fracture of their femurs when they take bisphosphonates, a type of medication prescribed for millions of people with the bone-weakening disease osteoporosis.

The study, funded by the Texas Biomedical Forum, the Texas Biomed Founder's Council, the San Antonio Area Foundation, and the National Institutes of Health (NIH), was published in the journal *Calcified Tissue International.*

In osteoporosis, bone remodeling happens faster than the growth of new bone tissue to replace the lost bone. Bisphosphonates suppress remodeling, allowing the accumulation of bone tissue.

Havill and others have theorized that some women are genetically predisposed to slower remodeling in the absence of osteoporosis. This genetic difference could be causing the drugs to have a greater effect on them and weaken their bones in areas not typically prone to osteoporotic fractures.

In their study, Havill and her colleagues examined femurs from 101 baboons from the pedigreed colony at Southwest National Primate Research Center. All had died for reasons unrelated to this research project. Their bones were obtained during necropsy and preserved. The researchers did microscopic examinations and found differences in bone remodeling dynamics that were influenced by inherited differences among the animals.

"Baboons are anatomically and physiologically very similar to humans, and these animals live a long time, so they develop many of the same age-related diseases that we do," Havill said. "This makes them a good model for age-related diseases such as osteoporosis. The results of this study suggest an explanation for why some women respond differently to the widely prescribed bisphosphonates."

"This supports the potential for a scenario in which certain individuals who are genetically predisposed to cortical microstructure that is less mechanically advantageous may experience disadvantageous responses to remodeling suppression, such as being at higher risk for atypical femoral fractures," Havill wrote in the study.

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