



# Forum in Focus

WINTER 2017

## President's Letter

Dear Members of the Texas Biomedical Forum, February is the month that we celebrate love, especially love of family and friends. As I think of this 'love' month, I share with all of you my love of the Forum and what that has meant to me. It has meant love of volunteering for a great cause, love of working alongside hardworking women, love of new friendships, love of the part, albeit small that we play in furthering medical research and the love of being proud to be associated with *Texas Biomed*, especially as I learn of family and friend illnesses and the fact that *Texas Biomed* can possibly make a difference in improving their lives one day.

This year, I have truly felt the 'love' from the 39 amazing women that sit on this Forum Board alongside me... their love of volunteerism, ideas and just excitement about our cause is contagious. There have been incredible accomplishments this year already (and we are only half way there) and I am grateful to share those with you...

I want to start by acknowledging our Forum Archivists, **Kim Johnson** and **Emilie Petty**, as well as our Forum Historians, **Amy Garcia** and **Shalimar Wallis**. Inadvertently, I failed to mention these four fabulous ladies in the prior newsletter in my printed article and for that I humbly apologize. It is an honor to have each of them serving on this board, especially Kim and Emilie who are new Trustees and giving much of their time to help with our Gala and also ensure that Forum keepsakes are properly passed on and our organizational items are stored where necessary.

**Amy Garcia** and **Shalimar Wallis** are this year's Historian's and working to memorialize all of this year's Forum events, to include the Gala so that we have a great recollection of our every detail and the ability to look back on each and replicate and/or change those details when and if necessary. These are such important jobs for our organization.

The efforts and time commitment from our Gala leaders are really immeasurable. **Ashley Weaver**, Vice-President- Gala Chair, **Molly Drought**, Vice-President- Gala Co-Chair and **Amelita Mauze**, Gala Assistant have paid attention to every detail and dedicated themselves to making this our best Gala yet. I am beyond excited for Forum Gala 2017, 'In Bloom' to be held on Saturday, May 6, 2017 at The Argyle. I know I speak on behalf of the Gala leadership, that we are grateful



Daniela Serna

for **Susan Wise** and **Walton Gregory**, past Gala Chairs who are serving as Gala Advisors this year. I extend my sincerest gratitude to all those that are sponsoring tables and raffle items, donating to our Forum Grants and have helped with this year's Gala in any way... you help continue the tradition of this great party for a great cause and I sincerely thank you!

**Courtney Percy**, Vice-President- Lecture Luncheon, along with **Carey Hildebrand**, Lecture Luncheon Assistant are now diligently working on our Spring Lecture Luncheon that will take place on Wednesday March 8th at The Argyle. *Texas Biomed* research scientist, Dr. Ricardo Carrion will be providing us with a basic overview of what *Texas Biomed* does, as well as focus on his study area of interest, Ebola. So, get a group of friends and join us!

**Jody Lutz**, Vice-President- Membership and **Karen Bryant**, Membership Assistant have worked hard to upkeep our membership database and ensure that anyone with questions on their renewal have not gone unanswered.

Forum Treasurer, **Sara McCamish** and Assistant/Gala Treasurer, **Amy Swaney** have been hard at work to keep our finances in order, as well as solidifying budgets and paying invoices. This job is the organization's lifeline and I am thankful for all their work.

**Elizabeth Cox**, Recording Secretary continues to keep us organized by sending timely agendas, minutes and other notices in advance of our meetings and keeps our attendance records accurately.

**Christine Mayer**, Corresponding Secretary has done a fantastic job as our organization's official note writer. She has implemented a system where all board trustees partake in our thank you card signing and I am grateful for her work on this. She has also coordinated with our Forum florist, Holly Besing Designs to send flowers and note cards when our fellow members need it most.

Immediate Past President, **Amanda Bezner** who chairs the Nominating Committee has completed the process to secure the next Executive Board for the Forum. The announcements will come at our February Board meeting. She will then start the process of obtaining new Board Trustee nominations that

*Continued on next page.*

will be due in March and announced in April. Thank you to her for leading this effort and to the Nominating Committee made up of: Karen Bryant, Ashley Hixon, Emily Jones, Whitney Miller, Mary Beth Mosbacker and Karen Lee Zachry.

Our Corporate and Community Outreach overseeing our Gala table sales, **Hayley Conger** has been hard at work! The Gala is officially sold out, however a waitlist is in effect, so I encourage you to contact us. Haley is very organized and diligent about making sure that all corporate and individual supporters continue to be recognized and appreciated, since without them... they are the heart of our Gala.

**Kelly Wade Fry** has worked on ensuring that two different directory versions are printed and mailed this year. Many changes are being unveiled in these directory versions and we are excited to share them with you.

We work hard all year long raising monies for our efforts to fund pilot/experimental research studies by *Texas Biomed* scientists. **Emily Jones** is leading Forum Grants and she has a clear and amazing vision on how to accomplish this lofty goal by reaching out to corporations, foundations, businesses, as well as individuals alike.

We are grateful for all of you that contribute to these important 'seed grants' that lead to greater/larger research study funding crucial to the work at Texas Biomed.

Logistics Chair, **Lynnette Embrey** continues to ensure that all Forum events are volunteer needs that our events require.

Newsletter Chairs, **Denise Mosser** and **Sarah Trampota** continue to work hard to put together our *Forum in Focus* newsletter. We hope you noticed that it is now in color and includes Forum tidbits. Our last newsletter of the year will be published after the Spring and will be more of our annual report, so stay tuned for a recap of all of our events then.

**Cynthia Kerby**, Parliamentarian led the effort to fully amend our by-laws! She was thoughtful with her incredible efforts and we are happy that we have approved a revised set this year.

**Brooke Meabon**, Social Media Chair continues to post on our Facebook and Instagram accounts. She is creating a page for our Board Trustees and continues to think of ways to improve these efforts.

Public Relations Chair, **Audra Kerr** for all Forum events, as well as our much anticipated Gala. She is expanding the list of PR contacts and working on a PR calendar to keep us organized.

**Nicole McClane** is our Forum Photographer. She is working on a centralized file of all our pictures so that we may use those as we need them for our newsletter, website, etc.

**Amy Maverick** and **Whitney Miller**, Science Education Awards Co-Chairs have been moving forward with their efforts to give away free money to high school science teachers at our Spring Lecture Luncheon and Science Education Awards event on March 8, 2017. Spread the word to your child's school if you know of a teacher that has an idea to further science in his/her classroom. Applications are found on our website.

Special Events Co-Chairs, **Stephanie Dick** and **Adrienne Frost** continue to be hard at work and gearing up for our Spring Special Events. They have some surprises in store for us involving fashion, jewelry, accessories and more! Stay tuned for more information.

**Jessica Berg** and **Mallory Moorman** are this year's Student Tour Co-Chairs. Any area high schools wanting to tour *Texas Biomed* can fill out an application on our website. The Forum hosts once monthly tours on the last Tuesday of the month, except for December and May. Please reach out to us if your child's high school is interested in participating.

Website Liaison, **Heather De Rojas** has been dedicating time to revisions and insights to incorporate into our new website, which should be finished mid Spring. She has also implemented a new text reminder system for our Board Trustees as related to all our Forum events.

My four fabulous Advisors- **Terry Gouger**, **Melissa Morgan**, **Karen Lee Zachry** and **Allison Zeller** continue to give of their time and energy to the Forum. They are always just a phone call or email away and I truly appreciate their continued presence at our meetings and events.

Finally, I'd like to thank Honorary Trustee, **Peggy Gracy** for her service to our Board. Her husband, Robert Gracy, recently retired as President of Texas Biomed. We wish them the best of luck in their future endeavors. I would especially like to thank, Honorary Trustee, **Leslie Hamilton**, wife of Adam Hamilton, current CEO of Southwest Research Institute, a sister organization to *Texas Biomed* also founded by Tom Slick. Leslie provided a wonderful synopsis of what SWRI is all about at our last board meeting. Our Board Trustees really enjoyed her dynamic presentation and many told me how much they learned from her at our board meeting and how exciting to know that we are all intertwined in some way or another.

I hope that I can spread my love of medical research and *Texas Biomed* to each of you and in turn, encourage you to volunteer with us, serve on our Board, help with our events or donate to our cause through Forum Grants, in particular. I continue to be honored to serve in this capacity and hope that you can see and share my love of the Forum, biomedical research and the jewel that is, *Texas Biomed* for San Antonio community.

With LOVE, gratitude and in service,

*Daniela Serna*

President 2016-2017  
Texas Biomedical Forum



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

## SAVE THE DATE:

The annual **Spring Lecture Luncheon** will be held on **Wednesday, March 8, 2017** at The Argyle at 11:00 am. In addition to announcing the winners of the Science Education Awards, we will proudly welcome Dr. Ricardo Carrion, Jr. Dr. Carrion is an Associate Scientist and the BSL-4 Laboratory Associate Director at Texas Biomedical Research Institute. One of Dr. Carrion's lab aims is to advance the vaccine and therapy development specifically for hemorrhagic fever, an illness caused by viruses from distinct families, many of which have no cure, and for which no vaccines are available. The team uses the maximum containment biosafety level 4 (BSL-4) laboratory to safely study those pathogens.



Dr. Ricardo Carrion, Jr.

- Ebola virus, Marburg virus
- Common marmoset nonhuman primate infectious disease models
- Advanced development of vaccines for hemorrhagic fever viruses
- New detection methods for bioterror agents

Dr. Carrion has more than 15 years of experience in microbiology and parasitology.

~Courtney Percy, First Vice President, Lecture Luncheon

### SPRING 2017 LECTURE LUNCHEON & SCIENCE EDUCATION AWARDS PRESENTATION

#### Calling all Forum Members - Help us Support your High School and Science!

Please help the Forum further our community outreach by recruiting your favorite **High School Science Teacher** and encouraging them to apply for the **Texas Biomedical Forum Science Education Awards!** About **\$20,000** in grants will be awarded to qualified applications! Help support your school and children by asking teachers to apply: <https://www.txbiomed.org/support-us/the-forum/high-school-outreach/science-education-awards/>

#### 2016 SCIENCE EDUCATION AWARD WINNERS

**1st - \$7,000 Keystone School**

"On Shaky Ground"

**Teacher:** Layne Steinhelper

**2nd - \$5,000 KIPP University Prep**

"Sugar, Fats, Proteins: What's really in the foods we eat?"

**Teacher:** John Cordier

**3rd - \$3,500 Earl Warren High School**

"Flipping the Switch: Hands on Electricity"

**Teacher:** Sarah Thompson

**4th - \$2,000 St. Mary's Hall**

"Investigation of Jellyfish Blooms and Life History Strategies of Aurella aurita"

**Teacher:** Devon Lee

**5th - \$1,500 Alamo Heights High School**

"Goddard Level Rocket NASA Mission Payload Year II"

**Teacher:** Colin Lang

~Whitney Solcher, Science Education Awards Co-Chair

### STUDENT TOURS



Student Tours are a fantastic opportunity for area high school students. The tour always proves to be a rewarding experience for the Forum volunteers, students, teachers and staff. The students are treated

to an in-depth tour of the Texas Biomedical Research Institute. They listen to lectures from scientists in many different areas of study, as well as a tour of the National Primate Research Center.



We are almost booked for Spring 2017. If you would like to volunteer at a tour please contact Jessica Berg at [jessicab@lmfj.com](mailto:jessicab@lmfj.com) and/or Mallory Moorman at [mallorymoorman@gmail.com](mailto:mallorymoorman@gmail.com).

#### Dates for Spring Tours are:

**February 28, March 28, April 25, and May 2.**

"During the last week, our visitation to the Texas Biomedical Research Institute allowed an excellent observation of the different process it takes to cure and study incredible diseases. Observing the different facilities TBRI had available for research was nothing short of incredible! Considering that the institute was founded in 1941 on the E.S.S.A.R. Ranch, it is astonishing that the facility has come so far with the innovative technology that has the ability to research infectious diseases such as Ebola and HIV." ~BP @ SACS

"The Texas Biomedical Research Institute is without a doubt the most beneficial establishment in the medicine and health community. Developing a vaccination in the form of HIV with more to come? WOW! All in all, I thoroughly enjoyed our trip to the research institute. What a great facility dedicated to the betterment of the world! Thank you!" ~WL @ SACS

~Jessica Berg, Student Tours Co-Chair

## FORUM GRANTS

The Texas Biomedical Forum raises money year-round for Forum Grants which fund pilot studies for Texas Biomedical Research Institute scientists. Each pilot study costs as much as \$50,000 and lasts about one year. These grants are sometimes known as “seed grants” because they are relatively small but the ideas they power can grow to become huge in impact.

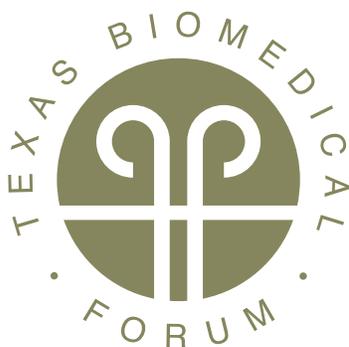
In the past 16 years, the Forum has awarded \$2.4 million to fund pilot studies. As a result, *Texas Biomed* scientists have been awarded \$55 million of additional funds to continue their work. Areas of life-saving, life-changing research include mental health, diabetes, Zika virus, malaria, cancer, Parkinson’s, cystinosis, osteoarthritis, Ebola, Marburg virus, HIV/AIDS, heart disease, obesity and many more.

We hope you will join our efforts to fundraise for Forum Grants in the following ways:

- Make a fully tax deductible Forum Grant donation, 100% of which will go directly to scientists’ pilot studies. Donations can be made online (<https://www.txbiomed.org/support-us/the-forum/forum-grants/>) or by mail (Texas Biomedical Forum, P.O. Box 6648, San Antonio, TX 78209).
- Recommend individuals, foundations and corporations that may be interested in contributing. We will gladly reach out to them.
- Help spread the word about this important fundraising initiative that supports research at Texas Biomedical Research Institute.

Proceeds from the Forum Gala in May also support Forum Grants. For more information, please contact Emily Jones, Forum Grants Chair, at [emilymorrowjones@yahoo.com](mailto:emilymorrowjones@yahoo.com) or 210.387.2563.

~Emily Jones, Forum Grants Chair



## COLLABORATIVE GRANTS

### **Towards a cure for AIDS in the SIV/ rhesus macaque model**

**Luis D. Giavedoni, PhD, Texas Biomed**

**Zhao Lai, PhD, UTHSCSA - \$50,000**

There is currently no cure for HIV and vaccine development has proved challenging. Patients are able to manage their disease with the use of highly active antiretroviral therapy (HAART), which has had a positive impact on reducing HIV morbidity and mortality. As with HIV infection in humans, infection with Simian Immunodeficiency Virus (SIV) in rhesus macaques is lifelong due to infected cells that lie dormant in the DNA of the virus that is integrated into the host DNA. Recent developments with new molecular tools, specifically CRISPR/Cas, have facilitated genome or DNA editing, making possible the removal of integrated provirus DNA from infected cells. We have designed genetically modified molecules that target conserved regions of the SIV genome, and showed that several of these edited molecules completely inhibit SIV replication in an *in-vitro* (*petri dish*) system. Further studies indicate these cells can be directed to specific target cells, and future studies will try to show in an animal model that genetically modified cells could provide a new therapeutic treatment for reduction of the virus that lies dormant.



### **Liver and serum metabolomics biomarkers for atherosclerosis**

**B. Misra Biswapriya - \$49,654.00**

17.3 million people, including roughly 2 million Americans, die every year due to cardiovascular diseases (CVDs), according to the World Health Organization, causing about 30 % of global deaths. The reasons for CVDs are primarily genetic, environmental, dietary and life-style related. Atherosclerosis is a buildup of plaque that leads to hardening and narrowing of the arteries thus constricting blood flow and is a leading cause of CVD. Diet plays an important role in the development of atherosclerosis. High-fat induced atherosclerosis results from abnormal fat metabolism, in which the liver plays a central role. In humans, it is very difficult to conduct long term diet-challenge studies and obtain liver biopsies for research studies or diagnostic testing. Thus, diagnostic markers that reflect the overall “health” of the liver over

time are of paramount interest. Using baboons that have been fed a high-fat, high-cholesterol (HFHC) diet for 2 years, we intend to explore changes in the metabolome (*small chemical molecules such as sugars, amino acids, fatty acids*) of the liver. The findings alongside future omics datasets such as transcriptomics and proteomics would allow an integrated understanding of diet-induced atherosclerosis in liver and blood.



### **Cellular long non coding RNAs in HIV replication**

**Smita Kulkarni - \$49,954.00**

In the three decades of the HIV epidemic, it has become clear that HIV-1 can be well controlled by drugs but not eliminated. Alternative strategies, which target host factors important in HIV infection and offer protection from or cure of HIV-1 infection, need to be developed. Long non-coding ribonucleic acids (lncRNAs) are a class of regulatory RNAs, which play a significant role in many cellular and developmental processes as well as disease-related pathways. lncRNAs are emerging as new predictive biomarkers and targets of therapy. Recently, Dr. Kulkarni's lab identified an lncRNA that contributes to both HIV infection potential and the level of HIV in the body. The role of lncRNAs in HIV development remains largely unknown. The aims of this proposed forum grant are to characterize genome-wide changes in the cellular lncRNA upon HIV infection, examine the interaction between cellular lncRNAs and HIV proteins and develop a gene editing approach to silence lncRNAs and study their effect on HIV replication.



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

**Anthony G. Comuzzie - \$46,307.00**

Over the last several decades the consumption of sugar-sweetened beverages, particularly those sweetened with high fructose corn syrup, has increased dramatically and perhaps not unsurprisingly parallels the increasing rates of obesity, type 2 diabetes, and cardiovascular disease seen in this country. Until relatively recently, most research has focused on the role of dietary fats on overall health, but that is changing. Dr. Comuzzie's team has shown that feeding normal healthy baboons a diet high in both saturated fat and sugar lead to significant increases in fat accumulation, along with significant decreases in insulin

sensitivity (an important precursor to the development of type 2 diabetes) in as little as eight weeks. In this study, Dr. Comuzzie's lab aims to evaluate the impact of simple sugar alone, providing baboons access to a high fructose corn syrup drink for eight weeks while keeping them on a low fat monkey chow. The team will monitor physical activity, as well as changes in glucose regulation and body fat. Such exposure is expected to lead to a significant decrease in physical activity over the course of the study along with increasing body fat and declining glucose control. His team also anticipates seeing elevated LDL (the bad form of cholesterol) and triglycerides, reflecting a broader disruption in key metabolic pathways. This pilot study will be critical for supporting potentially larger, more detailed studies on dietary composition and cardiovascular health utilizing this unique baboon resource.



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

**Genesio Karere - \$49,928.00**

Childhood obesity, which is strongly linked to heart disease, is increasing, especially among Hispanic youth. Currently, much attention is given to the management and treatment of heart disease in its later stages with little effort given to managing the disease early on due to the lack of accurate clinical biomarkers for early detection. Before heart disease is evident, individuals often develop lesions that may progress to plaques in the arteries. This arterial plaque blocks or reduces proper blood flow to the brain and heart, leading to strokes or heart attacks. Identifying children and young adults at high risk by early detection and intervention could help prevent progression of lesions to plaques and stem the development of later-stage heart disease. The goal of Dr. Karere's study is to discover markers that can be easily measured in the blood samples of adolescents in order to develop inexpensive and accurate diagnostic tests. He will analyze blood samples from high-risk Hispanic adolescents along with data from a small ultrasound machine that measures the size of lesions in arteries to determine whether adolescents with lesions in their arteries express unique microRNAs in their blood and whether these miRNAs correspond to lesion size. By discovering miRNAs that tell us the size of lesions; accurate and noninvasive diagnostic tests could be developed to catch and treat early onset heart disease.



## Novel antiviral based on crosslinking Marburgvirus nucleoprotein

**Andrew Hayhurst - \$50,000**

Therapeutics are scarce for several important viral groups and the situation is further confounded by the ability of viruses to rapidly mutate and evolve resistance to drugs. Filoviruses, such as Marburg and Ebola virus, are no exception to this. Researchers have shown viral mutations that lead to the virus being able to evade detection by neutralizing antibodies and evade host immunity. Dr. Hayhurst's approach is to target an internal antigen, which is a molecule, not under selective pressure to evolve, thereby making a resistant proof therapeutic. We have a panel of llama single domain antibodies that bind to a region of Marburg virus nucleoprotein that has shown no mutations since it emerged in 1967. We aim to engineer one of these antibodies to crosslink nucleoprotein molecules within the cell to "confuse" the viral replication machinery, essentially jamming it and reducing the yield of progeny virus. Because the nanobodies are so small and easily engineered it is conceivable that the approach can be combined with our anti-Ebola nucleoprotein antibodies which cross-react among 5 different Ebola species to form a broad spectrum anti-Filovirus drug. When successful, and with the appropriate antibodies, it is possible to extend this strategy to countering other viruses.



## Development of Novel Arenavirus Inhibitors into drug like substances

**Manu Anantpadma - \$50,000**

Arenaviruses are highly infectious and include viruses such as Lassa virus, Junin virus, Machupo virus. Lassa fever alone causes 100,000 to 300,000 infections per year with approximately 5,000 deaths. Strikingly, this is more than four to ten times the number of infections per year than all Ebola virus cases ever recorded (~28,000). Yet, the pace of research to develop antivirals against Arenaviruses is extremely slow. Except for Ribavirin, no FDA approved drugs or vaccines are available to treat these viruses. Ribavirin has several significant side effects and is only successful when administered early during infection. We have screened a 350,000 molecule library for inhibitors of Lassa virus entry and identified 5 novel inhibitor compounds. These compounds obstruct Lassa virus infection in a human cell line. Dr. Anantpadma's project is an effort to modify these compounds to have drug like properties. Once modified into drugs, the mechanisms of action of compounds will be studied. This data is necessary for FDA approval and testing in humans. Some of our drugs may be able to inhibit other dangerous Arenaviruses such as Junin and Machupo as well. The findings will therefore have a large impact on the fields of anti-Arenaviral research and disease treatment.

*~Lisa Cruz, Director of Public Relations/Texas Biomed*

## Experiencing First-Hand the Grant Award Process

 On Friday, December 16th, 2016, I had the privilege of sitting in on a meeting at Texas Biomed as a select group of scientists gathered to review pilot study grant applications and award monies generated from the 2016 Gala proceeds. The Texas Biomedical Forum raises money year-round for Forum Grants, which fund pilot studies for Texas Biomedical Research Institute scientists. A pilot study, pilot project or pilot experiment is a small scale preliminary study conducted in order to evaluate feasibility, time, cost, adverse events, and effect size in an attempt to predict an appropriate sample size and improve upon the study design prior to performance of a full scale research project.

I had the honored pleasure to observe as each pilot study was presented, reviewed and critiqued to determine which studies would be receiving grant monies. To witness the panel explore the studies with such attention to detail was an invaluable experience that only emphasized the importance of grants in advancing the research at Texas Biomed.

*~Courtney Percy, First Vice President, Lecture Luncheon*

# FORUM GALA 2017

*We hope you will join us for an elegant evening*

## *In Bloom*

### **“In Bloom” - May 6, 2017**

All tables are fully reserved, but if you are interested in being added to the wait-list please email [forumgala2017@gmail.com](mailto:forumgala2017@gmail.com).

*~Ashley Weaver, Gala Chair*

### **“In Bloom Under the Moon”**

We are so excited for the Gala “In Bloom Under The Moon” party after dinner! There will be amazing entertainment, fabulous cocktails, late night food, and pretty dresses to see! The party starts at 9:30 pm and goes until midnight. Tickets are \$200 per person, and that includes Forum membership. Please contact Kim Johnson at [kjohnson776@gmail.com](mailto:kjohnson776@gmail.com) for information. It's going to be one you won't want to miss!

*~Kim Johnson, Gala Entertainment Chair*

### **Raffle**

The Forum Gala will have 4-5 fabulous raffle packages this year. Details will be provided at the Spring Luncheon on March 8, 2017. There will be opportunities to purchase raffle tickets prior to the Gala and you don't need to be present to win.

*~Heather de Rojas, Gala Raffle Chair*

## **2016-2017 FORUM TIDBITS**

### ***Did you know...***

Texas Biomedical Forum has more than 200 members.

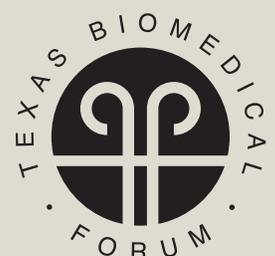
There are 3 levels of membership opportunity for women over 21 years of age who would like to join (Contributor -\$50.00; Supporter-\$100.00; and Benefactor \$250.00).

Forum members act as ambassadors to educate the San Antonio community about the vital research conducted at Texas Biomed.

Members of the Board of Trustees have approximately 14 Board events per year, 8 of which are Board meetings.

Nominations/Applications for The Board of Trustees are due in March of each year.

*~Sarah Trampota, Newsletter Co-Chair*



### Texas Biomed Names New CEO/ President



Dr. Larry S. Schlesinger, Texas Biomedical Research Institute's Board of Trustees has named Dr. Larry S. Schlesinger as the Institute's new President and CEO. Dr. Schlesinger, who is currently the Chair of the Department of Microbial Infection and Immunity and Director of the Center for Microbial Interface Biology at Ohio State University, will take the helm of *Texas Biomed* effective May 31, 2017.

"We are delighted to welcome Dr. Schlesinger as the new President and CEO of Texas Biomed," said Dr. James O. Rubin, Board Chair. "Dr. Schlesinger stood out as a man of vision, purpose and confidence who can lead *Texas Biomed* into a new era of growth and global prestige in scientific research. He is an eminent researcher in his own right and will bring with him a team of experts and funding which will greatly grow our efforts to combat tuberculosis."

Dr. Schlesinger has more than 30 years of experience in medicine and infectious disease research. He is an internationally recognized medical scientist with significant expertise on the origin and development of tuberculosis and other airborne communicable infections of great concern to human health globally. He and his research team have made major discoveries on the human immune response to pathogens, and he is translating these into host-directed drug discovery platforms. His laboratory studies innate immunity to these infectious pathogens by focusing on their interactions with human mononuclear phagocytes, which are cells that protect the body by ingesting harmful cells, bacteria or foreign particles. Dr. Schlesinger will continue his research at Texas Biomed, bringing with him a team of experienced researchers.

"I am honored to join *Texas Biomed* at an exciting time for biomedical research," said Dr. Schlesinger "This organization has a unique, pioneering history, and I look forward to being a part of that history and the Institute's future. Texas Biomed's research faculty has earned worldwide recognition and support for the quality and impact of their research. I am excited to join them as both

a scientific colleague and executive leader. The Institute has a reputation for dealing with some of the most difficult medical issues in the world, and I look forward to what we can all accomplish together in the future."

Dr. Schlesinger earned a bachelor's degree in biology from Cornell University and his medical degree from Rutgers Medical School. He served his residency and chief residency in Internal Medicine at the University of Michigan Hospitals in Ann Arbor, Mich., and then was a Clinical Fellow in infectious disease and a Research Fellow in bacterial pathogenesis at the UCLA Center for the Health Sciences and UCLA –San Fernando Valley Medical Program in Los Angeles, Calif.

Dr. Schlesinger is married to Judy Schlesinger, and they have two children, Michael and Eva.

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### Texas Biomed Scientists Help Find New Areas of Genetic Influence for Body Fat Distribution



Dr. Jack Kent



Dr. Michael Olivier

Dr. Michael Olivier, Chair of the Texas Biomedical Research Institute's Genetics Department and Dr. Jack Kent, Staff Scientist in the Genetics Department, are part of a group of researchers led by Dr. Audrey Chu in the Division of Intramural Research, NHLBI, NIH, who have identified new gene regions of the human genome that influence fat localization in the human body and ectopic fat, or the accumulation and distribution of fat outside typical fat stores. These findings contribute to a growing understanding that a person's risk of disease is impacted not just by carrying excess fat, but also by where that fat is stored.

Ectopic fat is often found surrounding the abdominal organs, in the liver and around the heart. An increase in ectopic fat has been linked to serious metabolic diseases,

such as heart and liver disease and diabetes. The findings, published in the journal *Nature Genetics*, point to a clear genetic regulation of fat distribution. Kent and Olivier participated in the study by providing CT scan data from the Metabolic Risk Complications of Obesity Study, a collaboration between the Medical College of Wisconsin and the TOPS Nutrition and Obesity Research Center at Texas Biomed.

“It will be critical in the future to look at how these genes influence not only weight gain and fat accumulation but also weight loss. Understanding the underlying genetic process could help explain the variability in diet success and response to weight loss treatment, helping to determine whether these genes impact success of weight loss,” Olivier said.

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## Research Uncovers Genetic Factor Responsible for Under-Diagnosis of Type 2 Diabetes in Inuit Population



Dr. Shelley Cole

Texas Biomedical scientists, led by Dr. Shelley Cole in the Department of Genetics helped researchers at Jewish General Hospital discover a genetic variation unique to Inuit people that raises concerns that diabetes may be significantly under-diagnosed in northern communities, putting more Inuit at risk for the serious complications that result when the disease goes untreated.

A study published in the November issue of *Diabetes Care* found that 27% of Inuit in Nunavik and Alaska have a variant in the TBC1D4 gene that lowers glucose slightly before a meal while raising it after eating. The latter effect is known to be a strong risk factor for complications from diabetes (*including heart attack, stroke, loss of limbs, kidney failure, and blindness*). Moreover, this curious effect means that diabetes can only be detected if a test known as an oral glucose tolerance test (OGTT) is administered. Less than one-percent of diabetes testing employs this method because it requires that patients wait to have their glucose level tested until two hours after consuming a sugary beverage in the clinic.

“Because of the prevalence of this genetic variant, as many as 10% of all Inuit may have diabetes, or pre-diabetes, without knowing it unless they are administered

an OGTT,” said Dr. Brent Richards, with the Lady Davis Institute at the Jewish General Hospital and Associate Professor of Medicine at McGill University. “It is, therefore, highly likely that we have underestimated the prevalence of diabetes among this population.”

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## Collaborations Pharmaceuticals, Inc. and Texas Biomedical Research Institute Announce NIH Award to Develop Ebola Virus Treatment



Dr. Rob Davey

The National Center for Advancing Translational Sciences (NCATS) recently awarded \$596,533.00 to Collaborations Pharmaceuticals, Inc. (CPI) to initiate a partnership with Texas Biomedical Research Institute aimed at repurposing an antimalarial for use against the

Ebola virus.

Data from a published large scale high throughput screen performed by SRI International and Texas Biomedical Research Institute was used to create machine learning models that identified 3 compounds active against the virus in vitro (in a lab, outside of a living organism). This earlier work had suggested that antimalarial compounds, as well as other classes of approved drugs could be of interest for repurposing.

“My lab has screened thousands of compounds against Ebola virus,” said Dr. Robert Davey, Interim Chair of Texas Biomed’s Department of Virology and Immunology. “This particular compound, pyronaridine, is promising because it is already an approved drug in Europe, has been used in thousands of patients and may have favorable molecular properties that could speed up its transition to clinical testing. We do not currently know the target of the three compounds and there is still considerable research needed.”

Dr. Davey’s laboratory has developed safe, efficient, high-throughput screening techniques for Ebola virus and performs contract work on testing drugs and compounds against Ebola virus infection in the biosafety level-4 maximum containment laboratory. This work has resulted in exciting findings towards potential drug candidates to combat Ebola virus.

## Texas Biomed Scientist Awarded Grant to Study Early-Onset Atherosclerosis

Texas Biomedical Research Institute Staff Scientist Dr. Genesio Karere was recently awarded a \$609,568 grant from the National Institutes of Health to study and identify molecular mechanisms underlying early atherosclerosis. Atherosclerosis is a thickening of the walls of arteries caused by high levels of “bad” cholesterol in the blood, which leads to cardiovascular disease and stroke.

Understanding early onset atherosclerosis could facilitate the development of early diagnostics and interventions. “It’s important to understand how and why atherosclerosis develops,” Karere explained. “If we can treat atherosclerosis in the early stages, we will be saving millions of lives.”

Scientists have collected arteries from baboons involved in previously controlled research studies, where they were fed a high fat, high cholesterol diet for two years. Researchers will determine how many of these arteries developed atherosclerotic lesions and analyze the molecular mechanisms leading to the development of these lesions. Scientists will also use CRISPR-Cas9 technology to edit genes that are identified as candidate genes to find MicroRNA interactions involved in the development of atherosclerosis.

By analyzing these tissue samples and identifying the molecular mechanisms involved in the development of early onset atherosclerosis, scientists could identify ways in which we can diagnose atherosclerosis sooner, allowing for earlier interventions. By analyzing microRNA interactions, Karere and his team are also looking for candidate genes that could serve as targets for drug therapies.

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## San Antonio Scientists Developing MRI-guided Stem Cell Delivery Method

Dr. Marcel Daadi, Associate Scientist and Director of the Regenerative Medicine and Aging Unit at Texas Biomedical Research Institute’s Southwest National Primate Research Center (SNPRC), and colleagues at the Research Imaging Institute at the University of Texas Health Science Center at San Antonio and MRI-Interventions Inc. in Irvine, CA are developing an MRI-guided technique to implant dopaminergic stem cells into the brain that would move scientists one step closer to



Dr. Marcel Daadi  
in Texas Biomed GMP Laboratory

delivery of a therapy for neurological disorders to patients. This technology is being developed in an effort to treat patients suffering from neurological disorders, like Parkinson’s disease, stroke and traumatic brain injury.

Dr. Daadi’s research has already developed in the lab stem cells capable of becoming dopaminergic cells, which are the cells Parkinson’s patients lose over time.

In a paper published in the journal *STEM CELLS Translational Medicine* titled, “MRI Guided Delivery of Neural Stem Cells into the Basal Ganglia of Nonhuman Primates Reveals a Pulsatile Mode of Cell Dispersion,” Daadi explains, “Stem cell-based therapy is emerging as a promising treatment for a variety of diseases and injuries. The first step in evaluating the potential of different therapeutic stem cell lines is to develop a safe and effectively reproducible delivery system.”

He and his colleagues, including Dr. Geoffrey Clarke and Dr. Peter Fox of the Research Imaging Institute at UT Health Science Center San Antonio and the MRI Interventions Inc. team, developed an operational technique for delivering stem cells with low invasiveness and high accuracy in placement of the stem cells to the basal ganglia part of the brain. The basal ganglia controls motor skills compromised in Parkinson’s disease.

The team tested the technique on baboons at the SNPRC and not only showed effective targeted delivery but also revealed a pulsatile dispersion of injected cells, meaning cells were not released at a steady rate but instead dispersed in small bursts. This is a significant finding as it demonstrated how injected cells disperse in the host brain and stimulates new ideas on how we can prepare the cells to function at their best.

Daadi was able to complete his study thanks to funds received from private donors to Texas Biomedical Research Institute and The Perry & Ruby Stevens Charitable Foundation. Dr. Daadi’s work is also supported by the Robert J. Kleberg, Jr. and Helen C. Kleberg Foundation and the William and Ella Owens Medical Research Foundation. Research at the Southwest National Primate Research Center is also supported by a grant from the Office of Research Infrastructure Programs, National Institutes of Health P51 OD011133.

## Dr. Timothy Anderson Receives MERIT Award from NIH for Malaria Research



Dr. Tim Anderson

The study of drug resistance in the malaria parasite received a big boost in January 2017 as Dr. Timothy Anderson, Scientist in the Department of Genetics at Texas Biomedical Research Institute, received a five-year, \$4.6 million MERIT Award from the National Institutes of Health. MERIT Awardees must be nominated by an NIH representative.

A very small number of these coveted awards are given each year to provide “long-term, stable support to investigators whose research competence and productivity are distinctly superior and who are likely to continue to perform in an outstanding manner,” according to NIH background information.

“I am delighted to receive this award, and it is a testament to the excellent researchers who have worked in my laboratory over the past 17 years and to their efforts to understand the basic biological processes underlying drug resistance evolution in malaria parasites,” said Dr. Anderson. “No good vaccines are available, so effective treatment of malaria patients is critical to malaria control efforts worldwide.”

The NIH MERIT award will enable Dr. Anderson and his team to expand their efforts to examine resistance evolution in Southeast Asia and to apply powerful new gene editing technologies to better understand drug resistance evolution. Dr. Anderson has received several Forum grants over the years that has helped further his research and lead to significant funding from NIH.

“Unfortunately, evolution of resistance to drug treatment complicates efforts to control malaria,” Dr. Anderson said. “Our aim is to identify the parasite genes that underlie resistance, to determine how frequently resistance arises, to monitor the spread of resistance and then to use this information to help design treatment strategies that can prevent resistance from arising in the first place.” - Dr. Tim Anderson

*~Lisa Cruz, Director of Public Relations/TX Biomed*

# big give

**Texas Biomed is again participating in San Antonio's day of giving on May 9, 2017.**

**The Big Give San Antonio is part of a nationwide movement to capitalize on a single day of giving across the city. People from all walks of life come together on-line and give to a local non-profit of their choice at a minimum of \$10.**



# Southwest Research Institute – Problem Solving from Deep Sea to Deep Space ... But Without the Monkeys

“Oh, you mean the place with the monkeys” - that’s the response my husband, Adam Hamilton, and I often receive when we mention our affiliation with Southwest Research Institute. Perhaps that’s understandable. Many confuse Southwest Research Institute and Texas Biomedical Research Institute because of their shared history and close proximity to each other. In 1941, Philanthropist Tom Slick, Jr., created the Foundation of Applied Research which went through several name changes: Southwest Foundation for Research and Education in 1952, Southwest Foundation for Biomedical Research in 1984 and finally, in 2011, to Texas Biomedical Research Institute. To further his vision of a Research Center in San Antonio, Tom Slick also founded Southwest Research Institute (SwRI) in 1947 as an independent, nonprofit applied research and development organization. His wish was for these two entities to be in close proximity on land that was part of the original Cable Ranch. Today, SwRI and *Texas Biomed* headquarters are just over two miles apart.



Leslie & Adam Hamilton

Adam Hamilton, the current president of SwRI uses the catch phrase “Deep Sea to Deep Space” as an excellent way to illustrate the depth and breadth of science and innovation at Southwest Research Institute. Most of the over 2,600 employees

work on the 1,200 acre campus in San Antonio, but SwRI also has offices in Michigan, Minnesota, Ohio, Colorado, Utah, Maryland, Oklahoma, Georgia, New Hampshire, the United Kingdom and China. The Institute has ten technical divisions that collaboratively serve the needs of clients in markets including: engines, fuels, emissions, electrification, lubricants, and vehicle design; infrastructure, manufacturing, robotics, and automation; renewable energy, fossil fuels, and the environment; defense and homeland security; life sciences, human performance, and medical devices; and space sciences, earth sciences, discovery, and exploration. Additionally, SwRI’s program for internal research and development allows engineers and scientists the freedom to explore advanced and innovative science and technology for solving future problems.

The diversity of funded programs at the Institute are almost split evenly between governmental and commercial clients. With regard to space, SwRI has had several high profile recent projects that include the SwRI-led New Horizons mission to explore Pluto as well as the Juno



Pluto



Robotics

mission which is currently mapping Jupiter. Also, SwRI is solving problems with aging and inefficient infrastructure by developing large robotic solutions and intelligent transportation systems. Automotive and transportation engineering has been a mainstay of the Institute since its inception, and SwRI continues to provide innovation for this industry by testing and improving fuels, fuel economy, lubricants, and hybridized and electric vehicles. One of the greatest strengths of the Institute is its ability to foster connections and collaborations between experts in diverse technical fields. In one recent example: automotive engineers working with chemists, developed a successful drug delivery method using fuel injector experience to perfect a nasal drug delivery mechanism. In other areas, the Institute’s fire technology department is testing “green” wood-based components for renewed interest in mid-rise buildings; automated cave mapping systems are delivering 3D images in a safe manner; solutions for radioactive waste storage issues are being addressed by combining geological and radiochemistry expertise with computer modeling; effects of deep reinjection of wastewater traditional and fracturing production techniques for oil and gas are being modeled and seismic risks are mitigated; and advanced ground water models are being developed to enhance our understanding of aquifers across Texas. Also, the exciting field of autonomous driving systems and intelligent vehicles can be witnessed around campus as the Institute demonstrates these technologies in SUVs, sedans, and even tractor trailers.



Autonomous Fleet

It's a testament to Tom Slick's vision that two of the organizations he created, Southwest Research Institute and Texas Biomedical Research Institute, continue to work together to this day. These organizations have joint projects underway for the treatment and prevention of Ebola, Zika, and other viral diseases. Scientists are

also collaborating on cultivating live stem cells to seed materials used to accelerate wound healing. Wound care products developed to treat diabetic skin lesions are under evaluations in animal trials. And SwRI president, Adam Hamilton, experienced in BSL-4 laboratory design, is assisting *Texas Biomed* as they plan for a potential new BSL-4 facility. The diversity and significance of their work, and the strength of the partnerships between the two institutions make SwRI and *Texas Biomed* truly some of San Antonio's most prized organizations. But hopefully, the distinction between the two is now a little clearer.

~Leslie Hamilton, *Forum Honorary Trustee*

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## FOUNDER'S COUNCIL



Jeff P. Bailey and Daniela Serna

The goal of Founder's Council is to advocate and create awareness for Texas Biomedical Research amongst young leaders in the community. All membership dues go towards equipment grants each year and totaled in excess of \$80,000 in 2016.

Another highlight of the year was the celebration of the 75th anniversary of *Texas Biomed* at the October dinner for their higher donors. This annual event was held for the first time on the front lawn of The Argyle. For more information regarding Founder's Council, please visit <https://www.txbiomed.org/support-us/founders-council/>

~Jeff Bailey, *Former President for Founder's Council*

## GOLDEN CIRCLE



"The Circle of Gold embodies the never-ending quest to eliminate disease and enhance life"

Have you ever wanted to cure a devastating health condition, create a vaccine to obliterate a killer virus or identify the gene that causes a debilitating disease? We all know that

our beloved "Forum" is an arm of the Texas Biomedical Research Institute and helps to raise pilot funds that scientists use to do just this. I always say that I may not have the skills to cure cancer, but at least I'm smart enough to invest in someone who can and you can, too. You can invest in something amazing that is happening right here in San Antonio, but affects people from every country that exists.

While all levels of contributions are much appreciated and assist the valuable efforts that occur at the institute, there are special membership opportunities for those who make annual contributions at higher levels. The Golden Circle includes those who make unrestricted donations of \$1000 or more to directly support indispensable biomedical research. As a member of this society, you will receive a prestigious award designed by New York artist Alex Ettl. You will also have the opportunity to attend events at The Argyle, exclusive appreciation events, briefings and receptions. These events are limited to only those in the elite "circles" of giving and really grant access to interact with the scientists and industry leaders that you may not have otherwise. You also receive the Institute's special news mailings and informative periodicals, as well as the annual report.

By being a part of the Golden Circle, your charitable giving and biomedical research work together to build a healthier tomorrow for people living today and for generations to come. I hope you will dare to dream with the rest of us. You can learn more about this group and how you can participate at <https://txbiomed.org/make-a-difference/circles-of-support> .

~Ashley Hixon, *Texas Biomed Board Trustee*

## FORUM BYLAWS UPDATES

At the November 16th board meeting, the bylaw revisions were voted on and approved. The most important substantive changes are as follows:

- Under Membership, categories were added to explain and clarify member levels to include “Honorary” status and dues were clarified to explain levels, benefits and deadlines.
- Under Trustees, the trustee count needed to conduct business was established, duties were explained and the Parliamentarian was added to the executive committee.
- Under Committees, the Gala Committee was added and its role defined as the primary fundraiser for the organization.
- Under Nomination & Elections, clarification was added for nomination deadlines.

- Under Meetings & Quorum, clarification of the October meeting serving as the budget approval meeting.
- Under Fiscal Year & Funds, dates were changed to update how we begin and end our fiscal year, funds were designated to be retained in the account for gala seed money, check writing policy was updated, addition of general liability insurance was added, as well as ‘Federal Income Tax Matters’ to explain best financial practices.
- Under Miscellaneous Provisions, the addition of ‘Indemnification of Trustees’ and ‘Conflict of Interest’ were included.

Last bylaw revision was in 2009. This 2016 revision was effective upon approval at the November board meeting.

~Cynthia Kerby, Forum Parliamentarian

### Texas Biomedical Forum Executive Board 2016-2017



**Top Row, Left to Right:** Christine Mayer, Sara McCamish, Jody Lutz, Elizabeth Cox, Amanda Bezner

**Bottom Row, Left to Right:** Courtney Percy, Daniela Serna, Ashley Weaver

**Not Pictured:** Molly Drought and Amy Swaney

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**Courtney Percy**  
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**Ashley Weaver**  
Second Vice-President, Gala Chair

**Molly Drought**  
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**Elizabeth Cox**  
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**Christine Mayer**  
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**Second Row from the Top, Left to Right:** Sarah Trampota, Whitney Miller, Emilie Petty, Kim Johnson, Carey Hildebrand, Shalimar Wallis, Jessica Berg

**Third Row from the Top, Left to Right:** Denise Mosser, Cynthia Kerby, Hayley Conger, Amelita Mauzé, Amy Garcia, Emily Jones, Amy Maverick, Kelly Fry

**Bottom Row, Left to Right:** Christine Mayer, Amanda Bezner, Jody Lutz, Courtney Percy, Daniela Serna, Sara McCamish, Ashley Weaver, Elizabeth Cox

**Not pictured:** Molly Drought, Nicole McClane and Amy Swaney

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## **SAVE THE DATE FOR ALL THE UPCOMING FORUM EVENTS**

Wednesday, March 8, 2017

**Science Education Awards and Spring Lecture Luncheon**

Wednesday, May 6, 2017

**In Bloom Under the Moon - Forum Gala**

• Wednesday, May 10, 2017 •

**Board of Trustees - Past President Luncheon**