

# 24th Annual Science Education Awards

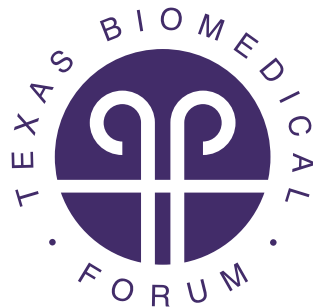
Presented in Partnership with the  
V.H. McNutt Memorial Foundation

Spring 2018 Lecture Luncheon  
"How Team Science Will Cure Infection"

Lecture Speaker:  
Larry S. Schlesinger, MD

Wednesday, March 7, 2018  
The Argyle

The Texas Biomedical Forum is a 501(c)(3) charitable organization that was established in 1970 to support and promote the Texas Biomedical Research Institute through community relations, volunteer service & fundraising.



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*Mariposa is coming!*



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# Research 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 17 years, the Forum has awarded \$2.7 million in pilot studies. As of today, Texas Biomed Scientists have been awarded \$72 million in subsequent competitive grants to continue their work as a result of these small pilot grants. That is an impressive return - each dollar Forum awarded has brought \$26 in subsequent major grant funding.

As a firsthand example, in the last 2 months Dr. Tim Anderson and his team have received separate NIH and Bill and Melinda Gates Foundation grants totaling \$14 million to further advance better therapeutics for devastating parasitic diseases Malaria and Schistosomiasis. Forum pilot grants awarded to Dr. Anderson and team in 2014 and 2015 totaled \$125,000 and allowed them to develop a rather novel idea of doing genetic sequencing and gene editing of a single cell of a parasite. This advance has helped make these mega-grants possible.

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

- Make a fully deductible Forum Grant donation, 100% of which will go directly to scientists’ pilot studies. Donations can be made online at <https://forum.txbiomed.org/forum-grants/donate/> or by mail to Texas Biomedical Forum, PO 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 Cynthia Kerby, Forum Grants Chair, at [cynthiakerby@hotmail.com](mailto:cynthiakerby@hotmail.com).

For the past 24 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 teachers whose proposals demonstrate the strongest commitment to the scientific process and the further development of progressive science education programs. Awarded funds are to be utilized for the purchase of project specific materials for these innovative, hands on science programs.

Winners are determined by a panel of judges including Science Education Awards founder, Valerie Guenther, representing the V.H. McNutt Memorial Foundation, Texas Biomed Scientists and Forum Trustees.

The Science Education Awards as well as our Student Tours of the Texas Biomed campus are two of the Forum’s most cherished Community Involvement platforms.

For additional information or to view a list of past recipients of Science Education Awards please visit:

<https://forum.txbiomed.org/community-outreach/science-education-awards/>

Our heartfelt thank you to the 2018 Science Education Awards Chairs: Amy Maverick, MD and Heather de Rojas

The Forum would also like to recognize Valerie Guenther for her leadership and ongoing support of the program.

Cheers,



Jody Lutz  
1st VP-Lecture Luncheon



Whitney Solcher Miller  
Luncheon Assistant

## About the Science Education Awards

The aim of the program is to assist in the purchase of teaching materials for science programs. The awards are given to the teachers whose proposals demonstrate the strongest commitment to the scientific process and the further development of progressive science education programs. This year's winners will receive:

1st Place: \$7,000

2nd Place: \$4,500

3rd Place: \$3,500

Honorable Mention: \$2,500 (2 awards)



### The 2018 Science Education Awards Judges Panel:

#### Representing the V.H. McNutt Memorial Foundation:

Valerie Guenther, Program Founder

#### Representing Texas Biomed:

Dr. Kendra Alfson, Ph.D, Postdoctoral Scientist  
Raul Bastarrachea, MD, Staff Scientist in the SNPRC  
and the Department of Genetics

Dr. Chris Chen, Ph.D, Staff Scientist, Dr. Robert Lanford's Lab

#### Representing the Forum:

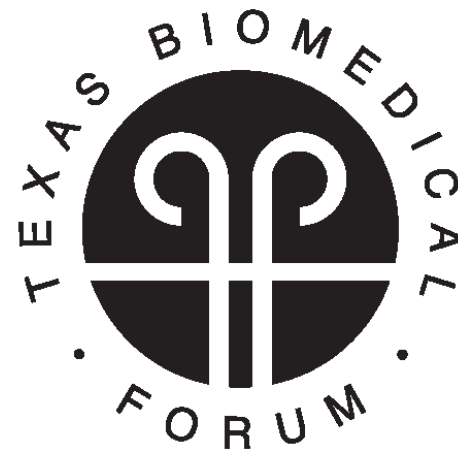
Amy Maverick, MD, Forum Trustee  
Heather de Rojas, Forum Trustee



**TEXAS BIOMEDICAL  
RESEARCH INSTITUTE**

Dr. Schlesinger is a leading physician scientist whose studies focus on the pathogenesis of tuberculosis and other airborne infectious agents that subvert lung immune mechanisms. His discoveries have led to greater insight into the unique attributes that soluble and cellular components of the innate immune system of humans bring to the microbe-host interface (with a focus on human macrophages), translating them into drug discovery platforms. He is a prolific scholar, having authored more than 170 peer-reviewed articles, served as editor of 2 books and has written several chapters in leading textbooks on tuberculosis and lung biology. He has been continually funded for nearly 30 years by the National Institutes of Health (NIH) and other federal agencies as well as private foundations such as the Bill & Melinda Gates Foundation.

He is a current NIH NIAID Council member, Fellow of the American Association for the Advancement of Science, Association of American Physicians and American Academy of Microbiology, and OSU's 2011 Distinguished Scholar and 2105 COM Distinguished Professor.



About our Lecture Speaker

## Larry S. Schlesinger, MD

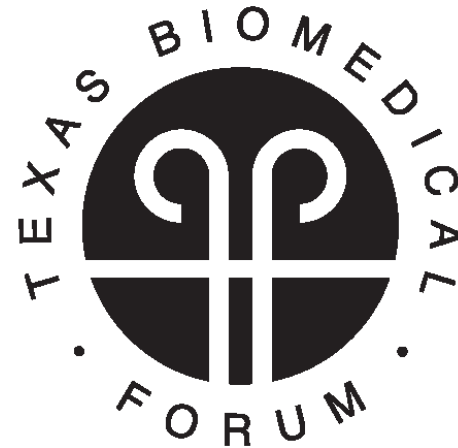


Larry S. Schlesinger, MD is an internationally recognized authority in infectious diseases with a particular interest in tuberculosis and lung biology. He earned a BA in Biology from Cornell University and MD from Rutgers Medical School. He completed his residency in Internal Medicine at the University of Michigan and clinical and research fellowships

in Infectious Diseases at UCLA. He joined the faculty at the University of Iowa in 1991 where he served as Fellowship Director for the Division of Infectious Diseases and Associate Chair of the Department of Medicine. He moved to the Ohio State University in 2002 where he served as Director of the Division of Infectious Diseases, Department of Internal Medicine until 2011 when he became first chair of Microbial Infection & Immunity. During his tenure he founded the Center for Microbial Interface Biology, a Board of Trustees approved university-wide center with a focus on infectious diseases of concern to public health. In 2017 he became President and CEO of Texas Biomedical Research Institute in San Antonio, Texas.

Applications for the 2019 Science Education Awards will be posted this summer at:

<https://forum.txbiomed.org/community-outreach/science-education-awards/>



This year we honor the following winning applicants for their innovative proposals:

### **Katelin Whittaker Advanced Learning Academy**

Blood, and the contents within, are extremely important to the survivability of humans. This project seeks to determine the effects of extreme forces, like those experienced in rocket flight, on the red blood cells. The students are designing and fabricating a rocket capable of reaching an altitude of 100,000 feet. In addition, they are designing and developing the Blood Burst System to test the effects of rocket flight on blood and its components. Students will analyze the blood of a single individual at baseline and then again after the blood has been in a rocket launch where it will undergo differences in pressure, extreme acceleration forces and opening forces of the parachutes.



**Colin Lange**  
**Alamo Heights High School**

How can students provide electricity to those without access in developing nations? An estimated 79% of individuals in developing nations have no electricity access. Students will investigate global electricity access and collectively determine a country or region to support. They will subsequently communicate via Skype with students in the selected area to learn about their daily energy uses and needs. Students will build energy converters and generators based on the needs of the particulate area that the project will serve while learning about sources of energy, energy conversion and efficiency. The students will ship their energy converters and generators to the international school for them to use as a source of electricity

**Sarah Thompson**  
**Earl Warren High School**

Students will identify real world impacts of pollution on water quality in San Antonio and use that information to become informed stewards of their environment. Aquatic science teachers will use nets to harvest benthic invertebrate specimens from various bodies of water in San Antonio and surrounding areas. Students will utilize magnification devices and dichotomous keys to identify invertebrate specimens. The students will classify the water samples on relative level of pollutants based on tolerance or intolerance to water quality changes of collected specimens. Students will create posters about water quality for the science hallway in order to educate other students about the effects of water quality on the health of an ecosystem and positively influence their behaviors throughout the rest of their lives in regards to maintaining the health of the planet.

**Justina Vidal**  
**St. Mary's Hall**

Inspired by an interview she heard on NPR about the difficulties oyster farmers face as the ocean becomes more acidified, Ms. Vidal sought to educate students on how the ocean acts as a "sponge" for carbon emissions which directly negatively affect the pH of brackish waters, the oyster industry and surrounding ecosystems. The students will recreate a miniature version of an oyster habitat in small aquariums in the classroom. After establishing a baseline pH, the students will bubble in carbon dioxide and observe how a decrease in pH can affect development of oyster shells. The potential damage to the shells at various pHs will be observed using a dissecting microscope. The students will then plant sea grass and other plants which can sequester carbon dioxide in the habitats and observe the changes in pH. Students will be able to calculate the approximate amount of carbon dioxide sequestered using pH calculations and stoichiometry. This project will allow students to see a real world example of a synthesis reaction, Henry's Law, Kinetic molecular theory, and the pH scale.

**Frank Morales**  
**Thomas Jefferson High School**

Was the suspect at the scene of the crime? Students involved in this project will receive non-human DNA samples along with DNA found at the simulated crime scene. Using polymerase chain reaction (PCR), students will make millions of copies of the scarce samples of DNA. Using the amplified DNA, students will use electrophoresis to separate and compare the DNA to reveal a "fingerprint" that matches the sample found at the crime scene, thus solving the case.