



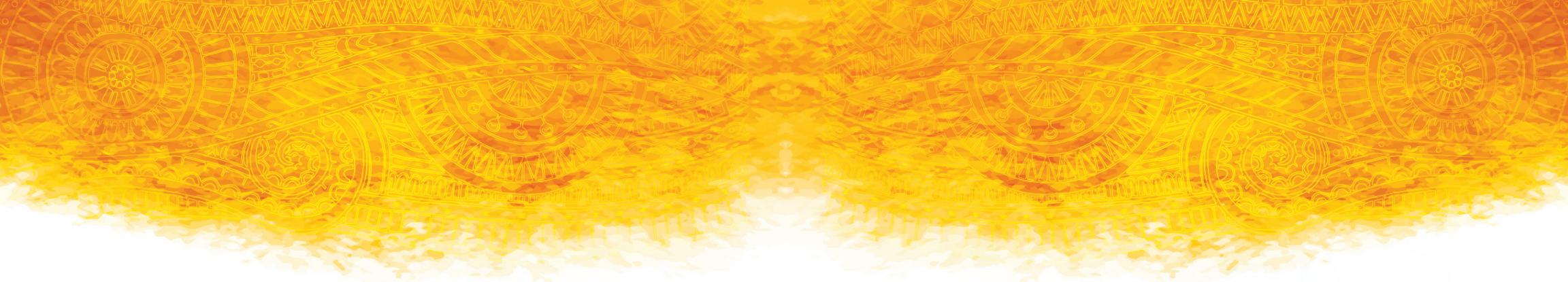
54TH
ANNUAL BRIEFING
NEW HORIZONS IN SCIENCE



SCIENCEWRITERS2016

October 28 - November 1 ★ San Antonio, TX

CASW Council for the
Advancement
of Science Writing



SCIENCEWRITERS2016



CASW Council for the
Advancement
of Science Writing


ALAN BOYLE
President

ROSALIND REID
Executive Director

BEN PATRUSKY
Director Emeritus

CONFERENCE PROGRAM

FRIDAY, OCTOBER 28, 2016

- 11:00 AM - 5:00 PM **NASW Board meeting**
San José, Omni La Mansión
- 12:00 PM - 6:00 PM **Check-in**
Outside the Iberian Ballroom, Omni La Mansión
-  1:00 PM - 4:00 PM **Pre-conference Session: How to make an awesome science video (and get people to watch it)**
Espada, Omni La Mansión
- 1:00 PM - 4:00 PM **Pre-conference Session: Interactive graphics for people with no free time**
Concepción, Omni La Mansión
-  3:00 PM - 5:00 PM **Tour: Infectious diseases, genomics and animal science at Texas Biomed**
Bus departs from Omni
-  6:00 PM - 9:00 PM **"Cowboy Up" welcome reception at the Lonesome Dove Room San Antonio's Henry B. Gonzalez Convention Center**
Buses depart from Omni
- 9:00 PM - 10:30 PM **Diversity Mixer**
Barriba Cantina, Omni La Mansión

SATURDAY, OCTOBER 29, 2016

- 7:00 AM - 5:00 PM **National Association of Science Writers meeting and workshops**
Omni La Mansión
- 7:30 AM - 5:30 PM **Check-in**
Lobby, Omni La Mansión
- 6:00 PM - 9:00 PM **Awards reception at The Witte Museum**
The Witte Museum, buses depart from Omni



Hosted Tours



Hosted Networking Events



Sessions



Breaks &
Lunch with a Scientist



7:00 AM - 8:15 AM **Breakfast**
Iberian Foyer

8:15 AM - 8:30 AM **Welcome: Henry Cisneros, Founder, Chairman of CityView**
Iberian Ballroom



8:30 AM - 9:30 AM **The faces behind digital crime and cyberterrorism**
Iberian Ballroom

Digital crime and cyberespionage have become almost daily news. Networks of cybercriminals and cyberspies are not only taking a serious financial toll on many companies and financial institutions, but are now also threatening national security and possibly meddling in the US election. While information-security professionals work around the clock to repair vulnerabilities and sweep intruders out of commercial organizations, government servers and national critical infrastructure, the question arises: Who are these inhabitants of what *Nature* called a "vast criminal underground?" What motivates them and what might turn an everyday hacker into a cyberterrorist? Max Kilger has spent the last 15 years exploring the psychology and social dynamics of these actors. He will give us a rare look into these communities, as well as a forecast of what emerging threats we may face.

#blackhats



Max Kilger
Senior lecturer, Department of Information Systems and Cyber Security,
University of Texas at San Antonio

Max Kilger received his PhD in social psychology from Stanford University. He has more than 15 years of experience in the area of information security, concentrating on the social and psychological factors motivating malicious online actors, hacking groups and cyberterrorists. Kilger has authored or co-authored a number of journal articles and book chapters on profiling, the social structure of the hacking community, cyberviolence and the emergence of cyberterrorism. He recently co-authored the popular book *Reverse Deception: Organized Cyberthreat Counter-Exploitation* and is working with his co-authors on his second book, *Deception in the Digital Age*. He is a founding and board member of the Honeynet Project, a not-for-profit information security organization with 54 teams of experts in 44 countries working for the public good. He was a member of a National Academy of Engineering committee dedicated to make recommendations for combating terrorism and is currently a member of a multinational instructional team for a NATO counterterrorism course.

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9:30 AM - 10:30 AM **How neurons build networks: A scientist mashes up smartphone data, graph theory and biochemistry**
Iberian Ballroom

How do networks form in the brain? This question, engineer Amina Ann Qutub thinks, is crucial to understanding the machinery of the cell and the role of cellular functions in disease and repair in the brain. One of Qutub's studies is reverse-engineering the construction of neurons and neural networks in Alzheimer's patients. Her research techniques combine massive data collection using smartphones with biochemical and cellular studies and graph-theory approaches drawn from computer science. Having copious, multi-scale data on each individual makes it possible to connect processes inside the cell with functional changes in the brain.

#buildabrain



Amina Ann Qutub
Assistant professor, Department of Bioengineering, Rice University

Amina Ann Qutub is a bioengineer and tech entrepreneur. Her research interests are in neurovascular systems biology, cell engineering and hypoxic response. Her lab's research vision is to harness human cells' natural behavior in order to understand and improve health. She uses computer simulations integrated with experiments to uncover how cells communicate during growth. Applications of this work are identifying new ways to slow cancerous progression and regenerate healthy human tissue. Amina Ann Qutub received her PhD in bioengineering from the University of California, Berkeley and UCSF. She joined the Rice faculty following her postdoctoral training in biomedical engineering at Johns Hopkins University School of Medicine. Qutub has authored or co-authored more than 30 publications, cofounded the tech startup DiBS and served as scientific lead of a 2014-15 DREAM Biomedical Data Algorithm Challenge after winning a 2013 DREAM subchallenge for interactive data visualizations. She is a 2012 National Science Foundation CAREER and 2015 NSF Neural & Cognitive Systems awardee.

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Hosted Tours



Hosted Networking Events



Sessions



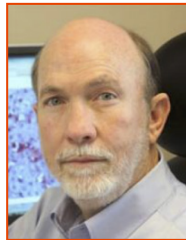
Breaks &
Lunch with a Scientist



9:30 AM - 10:30 AM Nonhuman primate research
Madero Ballroom

The recent NIH decision to stop supporting biomedical research on chimpanzees means a shift for organizations such as the Southwest National Primate Research Center in San Antonio. Directors of the National Primate Research Centers convened were by the NIH director this fall to discuss the value of nonhuman primate research and whether there is sufficient oversight. SNPRC Director Robert Lanford will share the outcome of this workshop and his perspective on the future of nonhuman primates in research. He will also share insights into other nonhuman primate models for disease and the benefit to biomedical research.

#primateresearch



Robert Lanford

Director, Southwest National Primate Research Center; Scientist, Department of Virology and Immunology, Texas Biomedical Research Institute

Trained as a virologist, Robert Lanford has worked with nonhuman primate disease models for 30 years, having established his lab at TBRI (then the Southwest Foundation for Biomedical Research) in 1984. Recently, his primary research focus has been hepatitis B and C viruses, with an emphasis on viral-host interactions and the innate immune response, and how these influence either viral clearance or persistence and

disease progression. Lanford has extensive experience in testing new antiviral therapies in the chimpanzee as the final preclinical step before human trials. His work with chimpanzees has demonstrated the potential for a broadly protective vaccine for hepatitis C. Lanford received his PhD in virology from the Baylor College of Medicine. He was founding co-editor of the journal *Viral Immunology* and has been an editorial board member for two virology journals. He has served on several NIH review boards and organized international conferences on the hepatitis C virus.

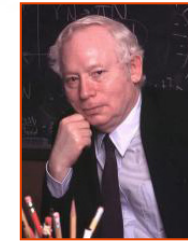
www.txbiomed.org/scientists/robert-lanford/
rlanford@txbiomed.org



10:30 AM - 11:00 AM Break
Iberian Foyer



11:00 AM - 12:00 PM Patrusky Lecture: What's the matter with quantum mechanics?
Iberian Ballroom



Steven Weinberg

Jack S. Josey-Welch Foundation Chair in Science and Regental Professor; Director, Theory Group, University of Texas at Austin

Steven Weinberg is one of the towering figures of physics. His research on elementary particle physics and cosmology has been honored with the Nobel Prize in Physics, the National Medal of Science, the Benjamin Franklin Medal of the American Philosophical Society, the Dannie Heinemann Prize for Mathematical Physics and numerous other awards. He has been elected to the National Academy of Science and Britain's Royal

Society and other academies and holds 16 honorary doctoral degrees. He has written more than 300 scientific articles along with six treatises on general relativity, quantum field theory, cosmology and quantum mechanics. He is also a lively expositor who enjoys talking to science writers; this is Weinberg's third appearance as a *New Horizons in Science* speaker. Among his books for general readers are *Dreams of a Final Theory*, *The First Three Minutes*, and two collections of published essays, *Facing Up: Science and its Cultural Adversaries*, and *Lake Views: This World and the Universe*. Many of these essays first appeared in the *New York Review of Books*. His essay writing has earned Weinberg the Lewis Thomas Award for the Scientist as Poet and other awards. His latest book, *To Explain the World: The Discovery of Modern Science*, was published in 2015. Educated at Cornell, Copenhagen, and Princeton, he taught at Columbia, Berkeley, MIT and Harvard, where he was Higgins Professor of Physics, before coming to Texas in 1982.

#quantummechanics

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12:00 PM - 2:00 PM El Día de los Científicos: Have lunch with a scientist
Various rooms (see pg 26), Omni La Mansión



1:30 PM - 3:15 PM Tour: 20% renewable by 2020 with CPS Energy
Bus departs from Omni



1:30 PM - 3:30 PM Tour: Making better products to save limbs and lives at Acelity
Bus departs from Omni



Hosted Tours



Hosted Networking Events



Sessions



Breaks & Lunch with a Scientist



2:00 PM - 3:00 PM **Science + Science Writing: The next Flint crisis (and why there will be one)**
Iberian Ballroom

The scandal over lead contamination of the Flint, Michigan, water system left in its wake huge questions for public officials, scientists and journalists. The Flint situation was exposed and addressed through the work of a vocal citizen, a journalist working for the ACLU and a small group of scientists in Virginia. The protagonists in the Flint story will join us for a discussion of how both scientists and journalists failed to uncover what was happening to Flint's water supply, why the same scenario is likely to play out again and the role of science writers in complex public health issues.

#nextflint



Curt Guyette

Investigative reporter, American Civil Liberties Union of Michigan

Curt Guyette joined the American Civil Liberties Union of Michigan in the fall of 2013 as interim media liaison and then was named investigative reporter, a newly created position funded by a grant from the Ford Foundation. He writes exclusively about issues involving emergency management and open government. Before joining the ACLU of Michigan, Curt worked as a print journalist for more than 30 years, including 18 years at the *Metro Times*, an alternative newsweekly based in Detroit. Guyette graduated magna cum laude

from the University of Pittsburgh with a BA in English writing. He is the recipient of numerous local, state and national journalism awards. The State Bar of Michigan has honored him three times for his outstanding coverage of legal issues. In January he was honored as the Michigan Press Association's "Journalist of the Year."

cguyette@aclumich.org

@CurtGuyette



Siddhartha Roy

Environmental engineer and PhD candidate,
Virginia Polytechnic Institute and State University

Siddhartha Roy is completing his PhD in the Department of Civil and Environmental Engineering at Virginia Tech. He works with Marc Edwards researching failure mechanisms in portable water infrastructure, specifically in copper and non-lead plumbing. Sid also served as the student leader and communications director for the Virginia Tech "Flint Water Study" research team that helped uncover the citywide lead

contamination and other corrosion-caused water quality issues in Flint, Michigan.

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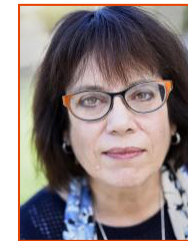
LeeAnne Walters

LeeAnne Walters is a Flint resident turned water activist and citizen scientist who helped expose the lead contamination of Flint's drinking water supply by leading citywide water sampling and protest efforts, as well as bringing in EPA and Virginia Tech experts to provide scientific evidence. In February 2016, she testified before the U.S. House Committee on Oversight and Government Reform on the Michigan Department of Environmental Quality (MDEQ), State of Michigan and the federal EPA's role in creating and prolonging the Flint water crisis. She is also the recipient of the 2016 PEN/Toni

and James C. Goodale Freedom of Expression Courage Award, the 2016 Health Policy Heroes Award and the Champion of Children Award. She is a dual citizen of Flint, MI and Norfolk, VA, where she lives with her husband and four children.

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@LeeAnne_Walters



Moderator: Deborah Blum

Director, Knight Science Journalism Program at MIT

Deborah Blum is a Pulitzer Prize-winning science journalist, columnist and author of five books, including *The Poisoner's Handbook* (2010) and *Love at Goon Park* (2002). She is a former president of NASW, was a member of the governing board of the World Federation of Science Writers, serves on the CASW board and chairs the Program Committee for the 2017 World Conference of Science Journalists. Blum is co-editor of the book *A Field Guide for Science Writers*. In 2015 she was selected as the fourth director of the Knight

Science Journalism Program at MIT. She is founder and publisher of KSJ's magazine, *Undark*.

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3:00 PM - 3:30 PM

Break

Iberian Foyer



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Sessions



Breaks &
Lunch with a Scientist



3:30 PM - 4:30 PM **Traumatic brain injury, stroke and aging: Novel insights from biology**
Madero Ballroom

As neuroscientists focus increasingly on brain injury, a complex picture is emerging. Mark Shapiro studies why seizures develop into epilepsy, a question important in the search for therapies for traumatic brain injury, where disabling seizures sometimes set in months or years after the original injury. Shapiro has tracked down the maladaptive changes that make seizures become ingrained. James Lechleiter's work focuses on astrocytes, the major support cells in the brain. While working on anticancer drugs, he found a way to boost the activity of these cells to accelerate healing of the brain and prevent destructive seizures. Together their labs are hoping to lay the groundwork for interventions that could stop maladaptive cascades of damage in the brain. Their work involves super-resolution microscopy and cellular and molecular studies that have implications for stroke victims and for limiting the neurodegenerative processes common with aging.

#stoppingseizures



James Lechleiter

Professor of cellular and structural biology,
University of Texas Health Science Center at San Antonio

James Lechleiter's research illuminates the molecular and cellular mechanisms of protection during stroke, traumatic brain injury and aging. Recent advances in his laboratory revealed how natural healing mechanisms can be activated by boosting mitochondrial energy (ATP) production in astrocytes, the major support cell in the brain. He shares patents on a confocal microscope for simultaneous imaging with

visible and ultraviolet light, a multi-photon laser scanning microscope using an acoustic optical detector and he recently received an individual patent to treat cerebral trauma with purinergic agonists. He is widely recognized for his seminal work in the field of calcium-ion signaling, where he made the initial discovery of intracellular spiral Ca^{2+} waves. He was co-recipient of the prestigious Erwin Schrödinger Prize for Interdisciplinary Research from the Helmholtz Society in Germany, received the President's Council Scholar Award from UTHSCSA, and he was designated a Health Care Hero in Medical Research by the *San Antonio Business Journal*. He is the co-founder of Astrocyte Pharmaceuticals, which is exploring development of a "concussion pill" based on his lab's research.

uthscsa.edu/csa/faculty/lechleiter.asp

Lechleiter@uthscsa.edu



Mark Shapiro

Professor of physiology, University of Texas Health Science Center at San Antonio

Mark Shapiro studied physics at the University of Chicago before completing a PhD in physiology with research focused on ion channels at Rush University Medical Center. He joined UTHSCSA after nine years as a senior fellow at the University of Washington.



3:30 PM - 4:30 PM **What artificial intelligence is and isn't: Programming creativity**
Madero Ballroom

What, really, is computer intelligence? What can robots do better than we do? Mark Riedl, the computer scientist who taught robots to tell stories, is taking his experiments in computer creativity a step further. His goal is not to understand human creativity or train fleets of robot writers and artists, he insists, but rather to understand how artificial intelligence can be creative and improvisational. This understanding, in turn, should provide new perspectives on fundamental questions in the AI field and refine ideas about how humans and computers can work together more productively.

#robotimprov



Mark Riedl

Associate professor, School of Interactive Computing, Georgia Institute of Technology

Mark Riedl is director of Georgia Tech's Entertainment Intelligence Lab. His research focuses on the intersection of artificial intelligence, virtual worlds and storytelling. Riedl's primary research contributions are in the area of artificial intelligence approaches to automated story generation and interactive storytelling for entertainment, education and training. The goal of his narrative intelligence research is to discover new computational algorithms and models that can facilitate the development of intelligent computer systems that can reason about narrative in order to be better communicators, entertainers and educators. Riedl earned a PhD degree in 2004 from North Carolina State University. Before arriving at Georgia Tech in 2007, he was a Research Scientist at the University of Southern California Institute for Creative Technologies. He has been the recipient of a DARPA Young Faculty Award and an NSF CAREER Award.

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Sessions



Breaks &
Lunch with a Scientist



3:30 PM - 5:30 PM **Tour: Infectious diseases, genomics and animal science at Texas Biomed**
Texas Biomedical Research Institute and Southwest National Primate Research Center;
bus departs from Omni



4:30 PM - 5:30 PM **Age, sex and meddling microbes: An update on cancer immunotherapy**
Madero Ballroom

Scientists' attempts to harness the immune system to fight cancer have met with mixed and often disappointing results. Tyler Curiel's lab is one of those working to find out why. He was the first to demonstrate that age makes a major difference in how the immune system responds to immunotherapy, with an experiment showing that a therapy that beat back melanoma in young mice failed in old mice because of a specific additional component of the older animals' immune response. Curiel's group then designed the first immunotherapy that works in old but not young mice, based on understanding age-related changes. Since that experiment, new work has demonstrated the role of microflora in mediating immunotherapy response, as well as significant male-female differences. Curiel will review the state of cancer immunotherapy and discuss his work exploring novel combination therapies and strategies to make resistant tumors more responsive.

#cancerpuzzles



Tyler Curiel
Daisy M. Skinner President's Chair in Cancer Immunology Research and Professor of Medicine, University of Texas Health Science Center at San Antonio

Tyler Curiel holds an MD from Duke and a master's in public health from Harvard. His postgraduate medical education combined internal medicine, infectious diseases and medical oncology. His laboratory has made seminal contributions to tumor immunology and immunotherapy that are helping shape the current resurgence of cancer immunotherapy, performing pivotal clinical human trials to establish new concepts

in cancer immunotherapy. His group also studies cancer prevention and age effects on cancer immunity and immunotherapy, and studies the basis for autoimmunity.

barshopinstitute.uthscsa.edu/main/facultystaff/barshopfaculty/u34
curielt@uthscsa.edu



4:30 PM - 5:30 PM **Science + Science Writing: Inside AI**
Iberian Ballroom

Following Mark Riedl's presentation, reporters and artificial intelligence researchers will discuss what science writers need to know about artificial intelligence and who will and should reap its benefits. Journalists tasked with reporting on the rapid development of machine learning risk perpetuating popular misperceptions of how artificial neural networks and other AI algorithms work and what their limitations are. The panel will ask who will and should benefit from the new technologies being rapidly developed from research on machine learning.

#insideai

Daniela Hernandez

Digital science editor, the *Wall Street Journal*

Daniela Hernandez's interests include genetics, neuroscience, robotics and artificial intelligence. Before joining the *Wall Street Journal*, she wrote for WIRED, *Kaiser Health News* and *Fusion*. She has a PhD in neurobiology from Columbia University.

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@danielas_bot



Scott Niekum

Assistant professor, Department of Computer Science, University of Texas at Austin

Scott Niekum directs the Personal Autonomous Robotics Lab (PeARL) at the University of Texas and is a core faculty member in the interdepartmental robotics group. Prior to joining UT Austin, Niekum was a postdoctoral research fellow at the Carnegie Mellon Robotics Institute. He received his PhD in computer science in September 2013 from the University of Massachusetts, Amherst, under the supervision of Andrew Barto. His research interests include learning from demonstration, robotic manipulation, human-robot

interaction, time-series analysis and reinforcement learning.

topics.wsj.com/person/H/daniela-hernandez/8407

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Andrea Thomaz

Associate professor of electrical and computer engineering, University of Texas at Austin

Andrea Thomaz joined the University of Texas faculty in January 2016 after serving as associate professor of interactive computing at Georgia Tech for nine years. She earned her master's and doctoral degrees from MIT in 2002 and 2006. Thomaz works in artificial intelligence, robotics and human-robot interaction. Her research aims to computationally model mechanisms of human social learning in order to build social robots and other machines that are intuitive for everyday people to teach. She received

an NSF CAREER award in 2010 and an Office of Naval Research Young Investigator Award in 2008. She was named to the *MIT Technology Review* Top Young Innovators Under 35 in 2009 and to *Popular Science* magazine's Brilliant 10 List in 2012.

www.ece.utexas.edu/people/faculty/andrea-thomaz



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Sessions



Breaks & Lunch with a Scientist



athomaz@ece.utexas.edu

Moderator: Hal Hodson
Editor and reporter, *New Scientist*

Hal Hodson works on stories about the technologies that shape our lives, the systems that control them and the people who find themselves in the yoke. Hal has explored warehouse husks filled with insects for human consumption in Ohio, watched dead rivers come back to life in Mexico, rescued a hexacopter from the side of a volcano in Bolivia, debated basic income in a sauna with 12 naked Finns, seen the world's greatest robots fail to climb a set of stairs – all in pursuit of a story. Hal has a degree in astrophysics from Trinity College Dublin. He is based in London.

www.newscientist.com
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6:30PM - 9:00 PM **iViva San Antonio! mixer at Sunset Station**
Buses depart from Omni

MONDAY, OCTOBER 31, 2016



7:15 AM - 8:30 AM **Breakfast**
Iberian Foyer

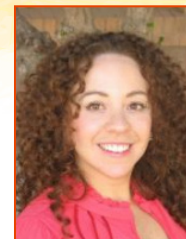


8:00 AM - 10:30 AM **Tour: University Hospital and UT Health Science Center**
Bus departs from Omni



8:30 AM - 9:30 AM **Cultivating citizen science to reduce environmental risks**
Madero Ballroom

Across America, environmental contamination is a persistent concern for many lower-income neighborhoods. Monica Ramirez-Andreotta focuses her research on contamination that affects everyday life. Typically scientists recruit "citizen scientists" to explore questions scientists ask. By contrast, Ramirez-Andreotta engages residents in motivating and framing research questions and policy issues, collecting data and, ultimately, reporting on the work to policymakers and working together to mitigate risks. Using an environmental justice framework, she will discuss results from her approach to democratizing science, demonstrating approaches to collecting exposure and risk data in a form that is directly relevant to participants' lives, increasing community involvement in environmental decision-making, and improving environmental health education and literacy in underserved rural and urban communities.



#gardenroots
Mónica Ramirez-Andreotta

Assistant professor, Soil, Water and Environmental Science and Division of Community, Environment and Policy, University of Arizona

Mónica Ramirez-Andreotta holds a PhD in soil, water and environmental science from the University of Arizona, where she returned to teach after serving as a research fellow and junior faculty member at Northeastern University. She also holds a master of public administration degree from Columbia University and undergraduate degrees in art, ecology and evolutionary biology. Her research interests include developing a fundamental understanding of the fate and transport of contaminants in the environment, with a primary focus on plant-soil systems and phytotechnologies to improve soil and air quality. In parallel, she is building citizen science programs to increase public participation in environmental health research, developing low-cost environmental monitoring tools to improve exposure estimates and designing effective risk communication and data report-back strategies to improve environmental health literacy. Ramirez-Andreotta is dedicated to and has been successful in reaching underserved populations. Her philosophy is that in order to successfully engage communities and students, it is essential to address critical environmental health problems identified by the community and work collaboratively through the problem-solving and research process.

swes.cals.arizona.edu/people/faculty/mónica-ramírez-andreotta
mdramire@email.arizona.edu



8:30 AM - 9:30 AM **New insights into the secret lives of dinosaurs**
Iberian Ballroom

By merging fossil evidence with a range of new technologies and methods, Julia Clarke and her colleagues are piecing together the story of how dinosaurs went through the adaptations and evolutionary tradeoffs that produced the vast diversity seen today in their living descendants, the 10,000 species of birds on earth. Clarke will share new insights from the fossil record and describe how the brains, bodies and behavior of birds help reveal how their dinosaur ancestors looked, sounded and moved in the real Jurassic world.

#dino secrets



Julia Clarke
Professor and John A. Wilson Centennial Fellow in Vertebrate Paleontology, Jackson School of Geosciences, University of Texas at Austin

Paleontologist Julia Clarke's research focuses on using phylogenetic methods and diverse data types to gain insight into the evolution of birds and avian flight. She is particularly interested in understanding shared patterns and potential causal factors in the evolution



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Sessions



Breaks & Lunch with a Scientist

of living bird lineages. Through international and cross-disciplinary collaboration, she seeks new data to inform how bird distributions and diversity, shape, and form have changed across their deep histories. Clarke earned her PhD from Yale University and is a research associate at the American Museum of Natural History, the Field Museum and the North Carolina Museum of Natural Sciences. She served on the faculty of NC State University for four years before joining UT. She serves as co-editor-in-chief of the *Journal of Anatomy* and is an associate editor of *Paleobiology*. She has published widely and been recognized for excellence in research, undergraduate teaching and outreach.

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 Julia_Clarke@jsg.utexas.edu

9:30 - 10:30 AM Self-driving cars and smart highways: A reality check
 Iberian Ballroom

Are self-driving cars really coming to your neighborhood? Steve Dellenback, who works with industry and military research programs on autonomous vehicles, doesn't think so. Sensor technology has a long way to go to compete with the best sensor network around—the human body and brain. The “last one percent” of the safety challenge won't be solved soon, he says. Instead, Dellenback expects automated vehicles to excel in specialized uses: off-road maneuvering in environments dangerous for people, providing mobility for people with disabilities and on smart highways specially built to manage traffic. Dellenback sees a bright future for “connected” vehicles that continuously talk to each other to maximize efficiency and safety.

#smarttranspo



Steve Dellenback

Vice president, Automation and Data Systems Division, Southwest Research Institute

Steve Dellenback is a systems engineer who joined Southwest Research Institute in 1984 as he was completing a PhD in computer science at the University of Kansas focusing on graphics language design and implementation. Today he leads a SwRI division with approximately 175 staff conducting approximately \$40 million annually in research and development efforts in areas including intelligent transportation systems

and unmanned systems and a wide range of other areas including spaceflight software, manufacturing automation, sensor networks, smart energy, data analytics, simulation and training. He is an international leader in the field of intelligent transportation system (ITS) and a member of the World Congress Board of Directors of ITS America.

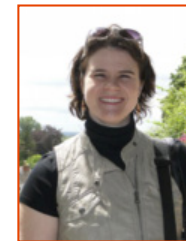
www.swri.org/4org/d10/d10home.htm
 steve.dellenback@swri.org



9:30 - 10:30 AM What lizard sex tells us about behavioral evolution
 Madero Ballroom

Michele Johnson wonders how different parts of an animal's body work together to produce behavior. She has zoomed in on an area of behavior at the center of evolution—courtship and copulation—and a group of species where just a few body parts are used. In male anole lizards, a single muscle controls courtship displays and just two muscles control the paired copulatory organs called hemipenes. Johnson is studying this simple system in depth to connect muscles, nerves, hormones and brain responses. The variation in these behaviors across species allows her to link genotype and phenotype and trace evolutionary patterns. A series of field observations, clever experiments and data analysis ranging from molecular analysis of brain tissue to video analysis will, she hopes, allow her to test a number of ideas about the physiological basis of how behavior evolves.

#lizardsex



Michele Johnson

Associate professor of biology, Trinity University

Michele Johnson trained in population biology at Washington University in St. Louis with a dissertation focusing on the evolution of behavioral ecology in Caribbean lizards. She completed a postdoctoral fellowship in behavioral neuroscience at Michigan State University, studying the neuromuscular mechanisms underlying social behavior in lizards. In 2009, she joined the Department of Biology at Trinity University, where her laboratory combines approaches from behavioral ecology and behavioral neuroscience to understand

the evolution of behavioral diversity in lizards. She was awarded the 2014 Outstanding Mentor Award from the Council on Undergraduate Research, Biology Division. Her work has been covered extensively on a blog for anole lizard enthusiasts, www.anoleannals.org.

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 @LizardMichele



10:30 AM - 11:00 AM Break
 Iberian Foyer



10:30 AM - 12:45 PM Tour: Sustainability, robotics and visualization at UTSA

Tour: Tissue printing, Lyme disease and photodynamic therapy at UTSA
 Bus for both UTSA tours departs from Omni



Hosted Tours



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Sessions



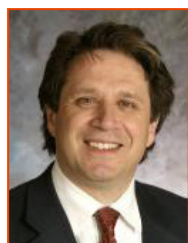
Breaks & Lunch with a Scientist



11:00 AM - 12:00 PM A “bully planet” unmasked: Insights from the Juno mission
Iberian Ballroom

Space fans celebrated in July as NASA’s Juno probe screamed toward Jupiter and slipped flawlessly into orbit around the monster planet after a 5-year journey from Earth. Since its arrival, Juno has looped through two broad elliptical orbits, taking preliminary scientific measurements and preparing to move into tighter loops. Scott Bolton will provide an update as Juno prepares to change orbits. Among the mission’s goals are big questions: What lies beneath the cloudy facade of the great planet that was first to form in the solar system? Do you need a Jupiter to make an Earth? The Galileo probe’s Jovian measurements upset early theories about the solar system’s evolution; Bolton expects Juno to finally answer some questions about Jupiter’s nature and role in solar system formation that have remained open ever since.

#bullyplanet



Scott Bolton

Associate vice president, Space Science and Engineering Division, Southwest Research Institute, Principal Investigator, Juno Mission to Jupiter

Scott Bolton has more than 30 years of experience with NASA space physics and planetary astronomy programs since 1988. Before leading the Juno mission, he had extensive experience managing multiple science investigations on the Cassini and Galileo missions. He spent more than 24 years at the Jet Propulsion Lab working in mission design, instrument design and delivery, mission development, science planning and science operations. In 2004 he became director of the Space Sciences Department at the Southwest Research Institute, where he managed the work of about 90 scientists and engineers. Bolton received his PhD in astrophysics from UC Berkeley in 1990. He has been honored with NASA’s Outstanding Leadership and Exceptional Achievement Medals, JPL Individual Awards for Exceptional Excellence in Leadership and Management and 24 NASA Group Achievement Awards. He is author or co-author of more than 250 scientific papers. He is actively involved in educational outreach and has a private company, Artistic Sciences, Inc., that has produced a number of musical concerts, art exhibits, scientific documentaries and videos aimed at inspiring and motivating interest in scientific endeavors.

www.nasa.gov/mission_pages/juno/main/index.html
scott.bolton@swri.org



12:00 PM - 1:15 PM Lunch on your own



1:00 PM - 3:00 PM Tour: Children and mental health at Clarity
Bus departs from Omni



1:00 PM - 4:00 PM Tour: Southwest Research Institute
Bus departs from Omni



1:15 - 2:30 PM Science + Science Writing: Science, climate change and the 2016 presidential election
Iberian Ballroom

As the U.S. presidential election approaches, climate change is one of the issues clearly dividing the two parties and their candidates. Hillary Clinton and the Democratic Party platform have embraced Obama administration initiatives and made climate change action a domestic and foreign policy priority. Donald Trump and the Republican platform have taken the opposite stance, denying both climate science and the need for governmental interventions to help curb it. How important are climate and energy problems to American voters? How will pro- and anti-science rhetoric affect the presidential and congressional elections? This session will assess the role of science in the 2016 elections, the political coverage, and the challenges for science journalists at the end of a fireworks-filled campaign season.

#science2016election



Chris Mooney

Energy and environment reporter, *The Washington Post*

Before joining the Post, Chris Mooney worked at Mother Jones, where he wrote about science and the environment and hosted a weekly podcast. He spent a decade prior to that as a freelance writer, podcaster and speaker, with his work appearing in *WIRED*, *Harper’s*, *Slate*, *Legal Affairs*, *The Los Angeles Times*, *The Post* and *The Boston Globe*, to name a few. He has also published four books about science and climate change.

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[@chrismooney](https://twitter.com/chrismooney)



Connie Roser-Renouf

Associate research professor, Center for Climate Change Communication, George Mason University

Connie Roser-Renouf’s research focuses on understanding how diverse audiences use, interpret and respond to information on the issue of climate change. The objective of this work is to identify effective communication strategies that inform and engage the public, while contributing to the theoretical literature on science communication, risk



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Breaks & Lunch with a Scientist

communication and social marketing. Roser-Renouf, who earned her PhD in communication research at Stanford University, has served as co-principal investigator for the Yale/GMU audience research program "Climate Change in the American Mind." Through surveys they have identified "six Americas," distinct audience segments that hold divergent beliefs on climate change and favor different responses to the threat. The daughter of a newspaper editor, Roser-Renouf considers the journalist's job one of "monumental import" in a time when opinion and politics are highly polarized.

communication.gmu.edu/people/croserre
 croserre@gmu.edu
 @ConnieRoserReno



Moderator: Cristine Russell

Senior fellow, Belfer Center for Science and International Affairs, Harvard Kennedy School
 Cristine Russell is an award-winning freelance journalist who has written about science, health and the environment for more than three decades. She was a national science reporter for the *Washington Post* and the *Washington Star* and is a past president of both CASW and NASW. She co-chairs the organizing committee for the World Conference of Science Journalists in San Francisco in October 2017. Russell is a senior fellow in the Environment and Natural Resources Program at the Kennedy School and teaches an HKS

class on "Climate, Energy & the Media." Her research focuses on the future of science writing and how to improve news media coverage of controversial scientific issues, from climate change to avian flu.

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2:30 PM - 3:00 PM **Break**
 Iberian Foyer



3:00 PM - 4:00 PM **Genomic parasitology: New weapons against malaria and other tropical diseases**
 Iberian Ballroom

A malaria infection isn't just a war between the victim's immune system and a parasite. When the parasites' genomes are sequenced, scientists often find many genotypes competing within a single victim. The parasites' dauntingly complex community structure is one of the factors driving the continuing emergence of resistance to antimalarial drugs. Ian Cheeseman is applying population genetic theories to explain the dynamics of drug resistance. His colleague Tim Anderson is applying new genomic tools to a different fight, against schistosomiasis, where the dynamics of resistance and population are entirely different. They will bring both good and bad news

from the frontiers of a field using genomics as a new weapon against parasites that are humanity's old and persistent enemies.

#parasitegenomics



Tim Anderson

Scientist, Texas Biomedical Research Institute

Tim Anderson has been studying parasites for three decades. Today his lab investigates the genetic basis and evolution of biomedically important traits in two groups of parasites together responsible for more than 800,000 deaths per year – *Plasmodium*, the malaria parasite, and the blood fluke *Schistosoma*. They are using genomic analysis of field-collected parasites and genetic crosses to identify drug resistance genes. The combined approach provides a way to understand drug resistance, host specificity, parasite virulence, and multiple other important biomedical traits. An Oxford graduate, Anderson earned his PhD at the University of Rochester and did postdoctoral work in Oxford and Milan. He has previously studied mice on Scottish islands, butterfly-ant symbioses in Australia, *Wolbachia* endosymbionts in filarial nematodes and roundworm transmission in Guatemalan villages.

www.txbiomed.org/scientists/timothy-j-c-anderson/
 tanderso@txbiomed.org



Ian Cheeseman

Assistant scientist and Milton S. & Geraldine M. Goldstein Young Scientist, Texas Biomedical Research Institute

Ian Cheeseman joined Texas Biomed in 2010 as a postdoctoral fellow in Tim Anderson's lab. In 2014 he became one of the youngest recipients of a major NIH award when he received \$1.8 million to pursue his "single cell genomics" approach to investigating malaria infections. He was recently invited to join the Pf3K consortium, an international effort to characterize genetic variation and the impact of natural selection in more than 3,000 directly sequenced malaria parasite genomes. The Cheeseman laboratory uses genomic and computational approaches to characterize the complexity of malaria infections, the evolution of drug resistance, and the rate and spectrum of adaptive mutations in the malaria parasite genome. Cheeseman received his PhD in parasite genetics and his MS degree in molecular biology of infectious diseases from the London School of Hygiene and Tropical Medicine.

www.txbiomed.org/news-press/news-releases/rising-star-malaria-research-dr-ian-cheeseman-named-faculty-texas-biomed-first-goldstein-young-scientist/
 ianc@txbiomed.org



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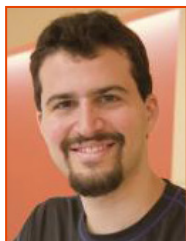


Breaks & Lunch with a Scientist

4:00 PM - 5:00 PM **The human genome's 3-D code**
Iberian Ballroom

First came the discovery of DNA's double-helix structure. Then the genetic code, a set of rules for translating DNA sequences into proteins. Molecular biology was born and rapidly began to revolutionize our understanding of life. But since the early 1980s, further progress on understanding the structure and activity of DNA has been slowed by a growing realization that the work of genes is controlled by another code—a three-dimensional code, by which the configuration of DNA in space controls gene expression. In recent years, Erez Lieberman Aiden and his collaborators have tackled this problem by developing new technologies that make it possible to sequence genomes in 3D, revealing not only the sequence of the bases, but their spatial position. These methods have yielded the first reliable maps of loops across the human genome, have uncovered a 3d code shared by all mammalian species and have enabled the development of genome surgery, where the insertion of a single base pair disrupts a cell's folding pattern and radically changes its function. Today, these techniques are used by thousands of laboratories all over the world.

#3dgenome



Erez Lieberman Aiden

Assistant professor, Baylor College of Medicine Department of Genetics and Rice University Department of Computational and Applied Mathematics

Erez Lieberman Aiden directs the recently established Center for Genome Architecture at Baylor. His wide-ranging work has involved both invention and theoretical science. With Martin Nowak, he is credited with the discovery of evolutionary graph theory, now widely used to understand the effects of structure on evolution. He won the Lemelson-MIT Student Prize for his work on the iShoe, a shoe to assist elderly people with balance problems, and in 2009 was named one of MIT Technology Review's top 35 innovators under 35. He won the Hertz Thesis Prize and the American Physical Society's outstanding thesis prize in biological physics for 2010. Science featured his articles laying out the folding principles of the genome and the analysis of culture using books digitized by Google. Awarded the NIH New Innovator Award in 2011, today he continues to work in culturomics while applying mathematical and computational approaches to the three-dimensional architectural of the human genome.

aidenlab.org
erez@erez.com

TUESDAY, NOVEMBER 1, 2016



8:30 AM - 12:30 PM **Tour: Natural Bridge Caverns**
Buses depart from Omni

9:00 AM - 10:30 AM **Tour: Inside San Antonio's icons**
Tour will begin and end in lobby of Omni



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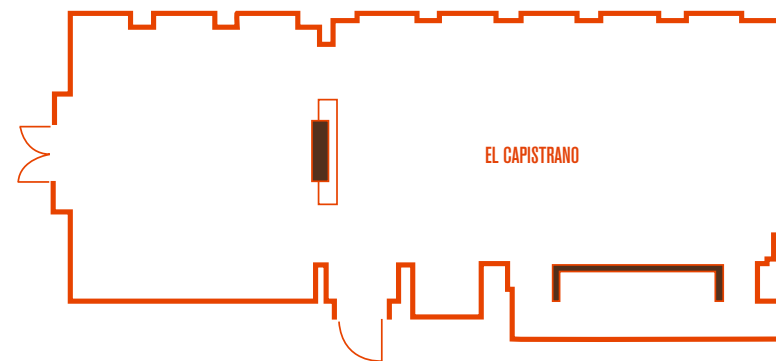
Breaks &
Lunch with a Scientist

LUNCH WITH A SCIENTIST

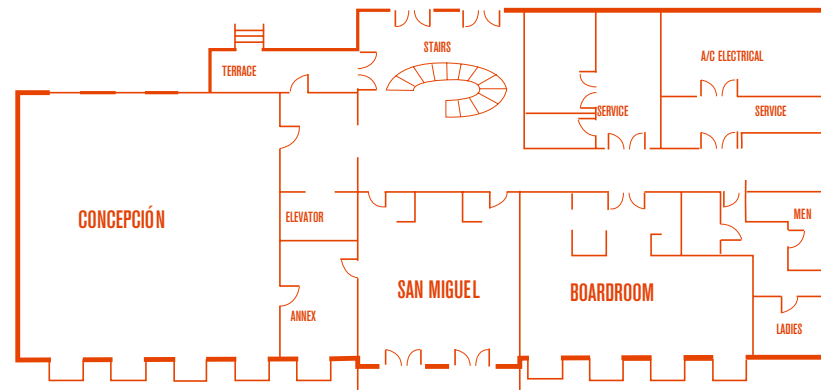
Speaker	Room	Omni Level
Teja Guda	El Capistrano	1st level
Cris Eugster	El Capistrano	1st level
Karl Klose (replacing Kristen Hansen)	Concepción	2nd level
Will Garrett	Concepción	2nd level
Joe McDonough & Rob Davey	San Miguel	2nd level
Andrew Cap	Boardroom	2nd level
Michael Wick (replacing Tony Tolcher)	San Miguel	2nd level
Brian Eastridge	El Conde	3rd level
Adam Urbach	Veramendi	3rd level
Soad Michelsen	Los Hidalgos	3rd level
Dr. Kevin Smart	San José	3rd level
Ti Ling Huang	Veramendi	4th level
Deepak Kilpadi	Veramendi	4th level
Richard Donat	Iberian A	5th level
Matthew Hart	Madero B	5th level
Alan Peterson	Madero A	5th level
Ruth Ruprecht	Cancelled	

CONFERENCE CENTER LAYOUT

La Mansión del Rio First Level

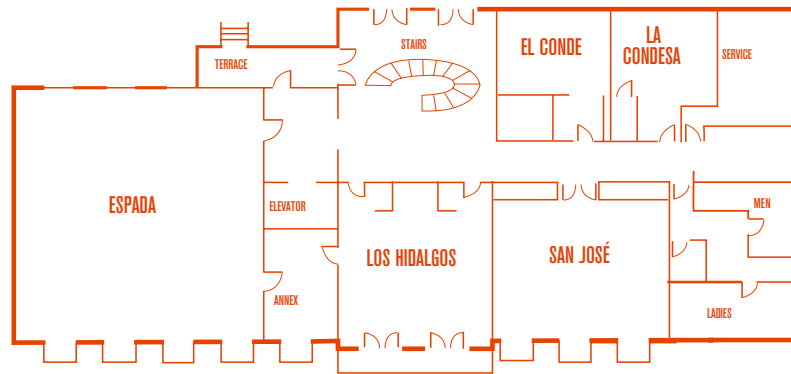


La Mansión del Rio Second Level

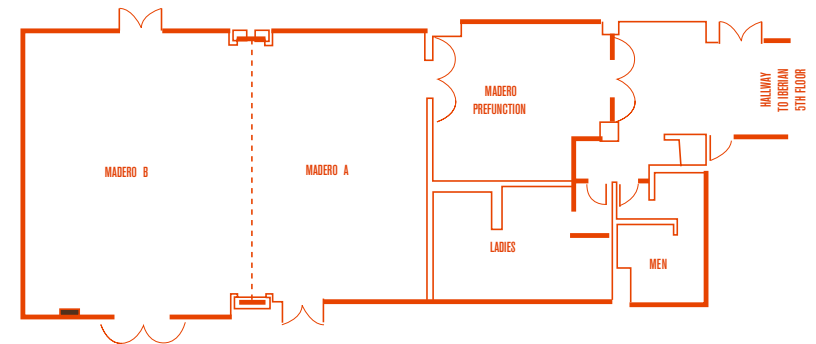


CONFERENCE CENTER LAYOUT

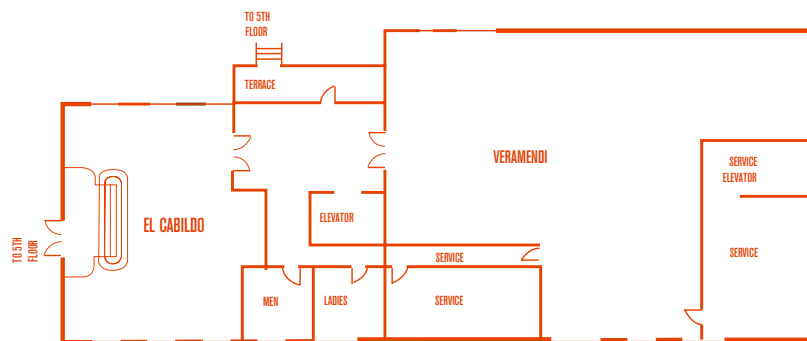
La Mansión del Rio Third Level



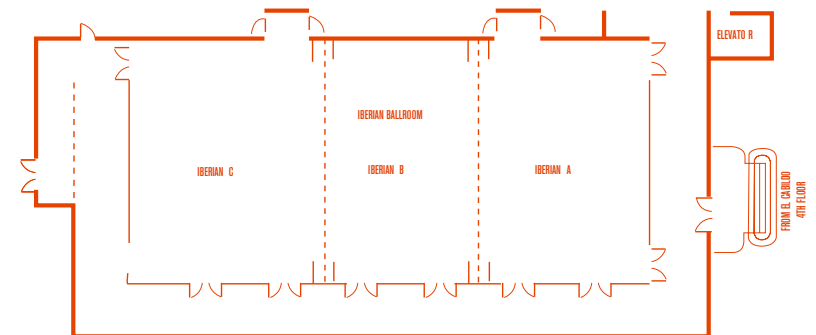
La Mansión del Rio Fifth Level-Part I



La Mansión del Rio Fourth Level



La Mansión del Rio Fifth Level-Part II



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BioMed SAN ANTONIO **SA** On the Front Lines of Regenerative Medicine

In 1836, defenders of the Alamo banded together to fight for a new way of life. Today's San Antonio, the Alamo City, is rallying its biomedical assets to lead the way in regenerative medicine.

San Antonio is where severely injured American troops come for the latest wound healing treatments. The San Antonio Military Medical Center is the nation's largest military medical complex with world renowned facilities for treating burns and rehabilitating amputees as well as the US Army's Institute for Surgical Research where advanced therapies for burns and combat wounds are born. The National Trauma Institute bridges war and peacetime medical practices with research studies into traumatic injury. Academic researchers at the University of Texas at San Antonio, UT Health Science Center, and Texas Biomedical Research Institute seek to unlock the healing properties of stem cells. BioBridge Global provides blood products, cell therapies, and tissue services for patient treatment and clinical research. Southwest Research Institute develops solutions to help move new therapies closer to market, while local biomedical companies focus on breakthrough advances in wound healing and regenerative medicine.

The results are a 21st century renaissance in a new frontier of medicine.

Altogether, San Antonio's many regenerative medicine players form a critical mass, leading to the formation of a local networking group, RegenMed SA, which conducts conferences on stem cell research and regenerative medicine. Known for its collaborative nature, San Antonio also hosted the 10th Annual World Stem Cell Summit in 2014 with attendees from more than 40 nations underscoring San Antonio's ability to bring together a diverse group focused on realizing the therapeutic potential of regenerative medicine.

Institution: BioMed SAContact
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Phone: 210-468-1829



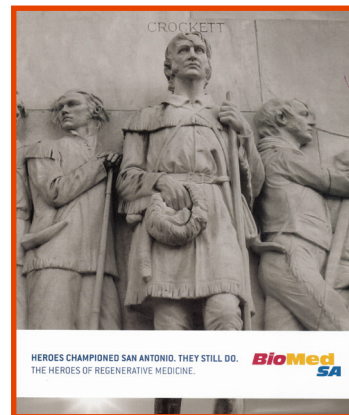
San Antonio. City of Science and Health

San Antonio's healthcare and bioscience industry is a leading engine of the regional economy..

Healthcare and bioscience employ nearly 1 of every 6 members of the city's workforce, with an overall economic impact exceeding \$30 billion, including the sizeable impact of academic and military medicine. San Antonio is a regional hub for medical care and education in South Texas, served by four major civilian health systems along with other hospitals, specialty providers, and more than 4,000 physicians. San Antonio is also recognized as the Home of U.S. Military Medicine with the nation's largest military healthcare complex at the San Antonio Military Medical Center and largest allied health training center at the Medical Education and Training Campus (Army, Air Force, Navy).

San Antonio is increasingly recognized as a national center for bioscience research and innovation.

Research is the fuel that drives the bioscience industry, and in San Antonio it springs from three distinct, yet collaborative, sources: research organizations, private sector companies, and the U.S. military. The industry cluster organization BioMed SA, supported in part by the City of San Antonio, has identified five areas of citywide strength – along with unique research assets -- within San Antonio's healthcare and bioscience sector: diabetes and metabolic disease; trauma, wound healing and regenerative medicine; neurologic disorders; cancer; and infectious diseases. The study of aging, while not a disease in itself, is also a core competency of San Antonio's research community. San Antonio's biomedical industry is working to leverage the community's leadership in these fields, as well as other areas of research and clinical care expertise, to promote and grow the local industry and improve health throughout the region and world.



Alamo heroes and today's heroes of regenerative medicine



Texas Biomedical Research Institute Enhancing lives Through Discovery

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Mobile: 210-724-1691

Personalized Research Can Lead to Personalized Medicine in the Fight Against Obesity

Scientists are learning, even more specifically that how a person's genes are decoded and behave in the body impact disease risk and thus can significantly impact disease prevention, diagnosis, treatments and cures on a more individualized basis.

In August 2016, the U.S. Centers for Disease Control and Prevention's National Center for Health Statistics released their finding that Americans have averaged an increase of 15 pounds in weight gain over the past 20 years, without getting any taller.

A study underway at the Texas Biomedical Research Institute in partnership with Wisconsin-based TOPS Club Inc.® (Take Off Pounds Sensibly®), the nonprofit weight-loss support organization, may unlock the mystery of why some people gain weight – and cannot lose it – while others have success at taking weight off and keeping it off.

Studies at the TOPS® Nutrition and Obesity Research Center at Texas Biomed focus on the role of how genetic predisposition to metabolic changes, nutritional preferences, appetite regulation, food intake and choice relate to obesity. This research builds on previous studies supported by TOPS that have led to the discovery of several "obesity genes."

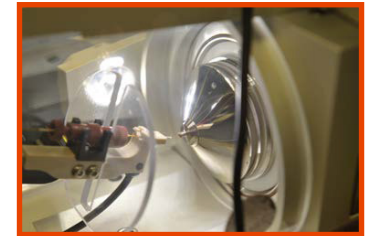
Through an electronic questionnaire, available at www.topsgenome.com, volunteers, who do not have to be TOPS members, provide eating habits, daily routines, and history of weight gain and loss. Some have been invited to participate in further research by providing a saliva sample of their DNA.

To learn more about this initiative, visit topsgenome.org. To speak with either co-directors of the Center, Dr. Michael Olivier or Dr. Tony Comuzzie, please contact Texas Biomed PR Director.

Regenerative Medicine, Nonhuman Primates and Their Role in Tackling Parkinson's and MD

Dr. Marcel Daadi and Dr. Tiziano Barberi have moved their labs to the Southwest National Primate Research Center's regenerative medicine unit to begin work with nonhuman primates in testing stem cell therapies for Parkinson's disease, muscular dystrophy and eye disorders. Dr. Daadi's primary focus is on developing a stem cell treatment for Parkinson's

disease, which is a consequence of the death of the brain cells that produce dopamine. Dr. Barberi's primary areas of focus are the directed differentiation of pluripotent stem cells and induced pluripotent stem cells with the goal of using these cells to treat muscular dystrophy and eye disorders. To learn more about their work, please visit their bio pages at txbiomed.org.



Scientists are learning, even more specifically that how a person's genes are decoded and behave in the body impact disease risk and thus can significantly impact disease prevention, diagnosis, treatments and cures on a more individualized basis.



On the Front Lines of Regenerative Medicine

BBG - Saving and enhancing lives through the healing power of human cells

BioBridge Global (BBG) is a San Antonio, Texas-based nonprofit organization that offers regenerative medicine, blood banking and biologic testing-related products and services – all in one organization. Its nonprofit affiliates – the South Texas Blood & Tissue Center, QualTex Laboratories and GenCure – provide products and services for regenerative medicine treatment and research, including blood components; cellular therapy components such as mononuclear and peripheral blood stem cells; umbilical cord blood and components; tissue services including recovery and product manufacturing; and blood and plasma product testing for clients in the United States and worldwide.

BBG – Committed to Enabling Research

BBG is committed to supporting groundbreaking research, addressing unmet clinical needs and enabling the development and commercialization of innovative biotechnology products for the regenerative medicine arena. Additionally, BBG is uniquely positioned to develop new solutions in testing, stem cell manufacturing, and donated human materials.

BBG is actively engaged in research and development initiatives in the areas of:

- Blood safety testing for emerging infectious agents
- Umbilical cord blood MSC productions – scaling for mass application
- Umbilical cord plasma production and characterization
- Development of assays for quality control

For more information on BBG’s active research projects, visit:

<https://sabioscienceresearch.org/organizations/biobridge-global>

For more information on BBG, visit: www.biobridgeglobal.orgBBG.

Institution: BioBridge Global
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Title: Director of Corporate Communications
Email: mary.uhlig@biobridgeglobal.org
Phone: 855-326-5765 x1519



BBG – Saving and enhancing lives

BBG’s Topic Expertise:

- Emergent infectious agent testing
- Processing transplantable therapies
- Scaling stem cell production
- Manufacturing stem cells
- Quality control for regenerative medicine therapies



Southwest Research Institute

Institution: Southwest Research Institute
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Southwest Research Institute® – a premier independent R&D organization

Southwest Research Institute® (SwRI®) is a premier independent, nonprofit research and development organization. With 10 technical divisions, we offer multidisciplinary services leveraging advanced science and applied technologies. Since 1947, we have provided solutions for some of the world’s most challenging scientific and engineering problems. Headquartered in San Antonio, Texas, our client-focused, client-funded organization occupies 1,200 acres, providing more than 2 million square feet of laboratories, test facilities, workshops, and offices. Today, more than 2,700 employees perform contract work for government and industry clients. Southwest Research Institute conducts thousands of research programs on projects spanning deep sea to deep space ... and everything in-between.

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SwRI’s headquarters in San Antonio, Texas, encompasses 1,200 acres, and provides more than 2 million square feet of laboratories, test facilities, workshops, and offices.



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Acelity™
Innovation at Acelity

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Title: Senior Manager, Corporate Reputation
Email: Laurel.Harper@Acelity.com
Phone: 210-255-5535

Who We Are

Acelity is a world leader in advanced wound care and regenerative medicine. The company began with the creation of Kinetic Concepts Inc. (KCI) 40 years ago in San Antonio in a 1-bedroom apartment. With the addition of LifeCell and Systagenix, Acelity has grown into a global life-sciences, advanced healing company dedicated to serving the needs of physicians and patients in more than 80 countries. Acelity's core businesses are divided into two segments—advanced wound therapeutics (AWT) and regenerative medicine (RM). KCI and Systagenix conduct the AWT business and develop innovative healing solutions including advanced wound care devices, wound dressings and epidermal harvesting technology to help heal patients suffering from traumatic, surgical or chronic wounds. LifeCell researches and develops regenerative and reconstructive acellular tissue matrices that enable the body to regenerate tissue, which is used in general and reconstructive surgical procedures, including abdominal wall and breast reconstruction procedures. Acelity employs 5,800 people worldwide.



Commitment to Innovation

- We are constantly looking for ways to address the unmet needs of clinicians and patients. This philosophy led us to develop our own innovations like PREVENA™ Therapy, and, we continue to look for opportunities to acquire technologies like the SNAP™ and REVOLVE™ Systems in order to grow our innovative portfolio and introduce new, complementary solutions.

- Research and development is also important and has yielded many leading brands like V.A.C.® Therapy as well as an extensive patent portfolio. We hold more than 2,700 patents worldwide and continue to increase that number by 100 every year.
- We also have our Franchise Model divided among our core businesses. Each Franchise (Advanced Wound Dressings, Post-Acute, Acute, Incision Management & Emerging Technologies, Abdominal Wall Repair and Breast Reconstruction) is led by a seasoned leader and works cross-functionally to drive innovation growth.
- In the end, if we don't innovate and invest in new innovations and technologies, we'll fail the clinicians and patients who are counting on us. Our investments to improve our technologies are in service of giving people who are suffering from chronic or acute trauma the chance to live with the ability to walk again, or in some cases, live without pain. It's also part of our employee culture—our employees galvanize around our vision to restore people's lives. Beyond our employees, innovation extends to our partnerships with clinicians. Their feedback and expertise help us bring new solutions to market that helps treat patients more effectively—all of this helps reduce the overall cost of care and improves the clinician and patient experience.

Mark Your Calendars For October 26-30

MARK YOUR CALENDAR!



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