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## Bio/Bio News

February 2016

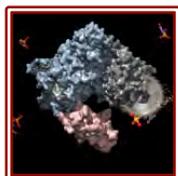
### BIO/BIO FACULTY IN THE NEWS

#### CUTTING EDGE RESEARCH FROM DR. JUNJIE ZHANG'S GROUP

New [cryo-EM structures](#) from [Junjie Zhang's](#) group in the Department of Biochemistry and Biophysics were [highlighted](#) in the January 2016 issue of *Structure*.



Phosphorus is an important nutrient in all forms of life, and phosphorus availability is often limited for agriculture. The C-P lyase from bacteria recycles phosphorus-containing compounds by cleaving a wide variety of compounds containing carbon-phosphorus bonds.



In collaboration with the Raushel group at Texas A&M, Kailu Yang, a Biochemistry graduate student from the laboratory of Dr. Zhang, used cryo-electron microscopy to solve the structures of the C-P lyase that had been difficult to look at by other methods. The new structures revealed the binding of the PhnK protein (shown in pink) to a dimeric core complex of the C-P lyase exposes the active site residue in PhnJ. This result provides new insights into phosphorus recycling in nature.

The paper "Structures of the Carbon-Phosphorus Lyase Complex Reveal the Binding Mode of the NBD-like PhnK", *Structure*, Vol. 24, Issue 1, January 2016, pp 37-42, may be viewed on the website:  
<http://www.sciencedirect.com/science/article/pii/S0969212615004980>

#### MIC AND IMAGING SCIENCE SPOTLIGHT SERIES

In a letter from the office of the Executive Associate Vice President for Research, Dr. Marty Scholtz, forwarded to the faculty by Dr. Greg Reinhart, it was announced that a new transition is taking place in Microscopy and Imaging Services at Texas A&M.

In his announcement Dr. Sholtz states. "Dr. Andreas Holzenburg resigned as Director of the Microscopy and Imaging Center and has left Texas A&M University effective February 1, 2016. Andreas has served the MIC and the Texas A&M research community admirably and we are grateful for his service and wish him the best in his new venture."

"As we transition to a new leadership paradigm and structure for the MIC, we will endeavor to provide the same full, excellent service to the research community. I am happy to report that Dr. Stan Vitha has accepted our offer to assume the operational management of the facility and will serve the staff and the research community as we move forward. We thank Stan for his willingness to step up and take on this responsibility."

"We have already begun to engage the imaging research community at Texas A&M about the entire enterprise, including the MIC through the Imaging Science Research Interest Group (<http://vpr.tamu.edu/researchdevelopment/RIWG/imaging>), and our discussions will expand now to leadership. I encourage you to become engaged in this discussion as users of the MIC. An opportunity for dialog and discussion occurs next week at the Imaging Science Spotlight seminar and poster session. I hope to see you there and hear your thoughts on Imaging Science at Texas A&M."

Stan Vitha received his Ph.D. in Cell and Molecular Biology in 1995 from the University of South Bohemia, Czech Republic. His graduate research was conducted in the Institute of Plant Molecular Biology (Czech Academy of Sciences, České Budějovice), DeMontfort University, Leicester, England (with Dr. Kevan Gartland) and University of Bonn, Germany (with Prof. Dieter Volkman). Stan participated in postdoctoral research from 1996 to 1998 with Dr. Fred Sack at Ohio State University and with Dr. Katherine Osteryoung, first at University of Nevada, Reno, then at Michigan State University in East Lansing. Stan joined the Microscopy and Imaging Center in August 2004. He is responsible for light microscopy imaging, training of users on optical microscopes and for sample



Dr. Stanislav Vitha

preparation (vitrification) for cryo-TEM. His current interest is chloroplast division, optical imaging techniques, Image restoration (deconvolution) and image analysis.

### **NEW NIH AWARDS WILL SUPPORT DEVELOPMENT OF THERAPEUTIC ALTERNATIVES TO TRADITIONAL ANTIBIOTICS**

The National Institute of Allergy and Infectious Diseases (NIAID), part of the National Institutes of Health, has awarded approximately \$5 million in funding for 24 research projects seeking to develop non-traditional therapeutics for bacterial

infections to help address the growing health threat of antibiotic resistance. Advancing new therapeutic options to combat drug-resistant bacteria is a key goal of the President's [National Action Plan for Combating Antibiotic-Resistant Bacteria](#) ([link is external](#)).



“The discovery, development and deployment of antibiotics have transformed medicine; however, microbes continually evolve and become resistant to these lifesaving drugs,” said NIAID Director Anthony S. Fauci, M.D. “New strategies are desperately needed to treat patients with antibiotic-resistant infections that often are deadly. These new NIAID grants will provide funding to researchers developing unique, non-traditional therapies that could complement or even replace currently available antibiotics that are losing effectiveness.”

Increasing resistance to antibiotics coupled with the slow pace of new antibiotic development threatens to erode the past 70 years of progress in fighting life-threatening bacterial infections. The overuse and abuse of antibiotics drives this issue and, as a consequence, bacteria adapt to antibiotics designed to destroy them, making the drugs less effective and allowing antibiotic-resistant strains to survive and multiply.

A non-traditional therapeutic is an antibacterial treatment that works differently than traditional antibiotics, which typically target one or more essential pathways, such as those involved in cell-wall and protein synthesis, to directly kill or inhibit the growth of many types of bacteria. One non-traditional approach, called therapeutic bacteria, uses good bacteria found in or added to the human microbiome to target or control the growth of harmful bacteria. Another alternative approach is bacteriophage or phage therapy, which uses viruses that only affect bacteria to reduce or eliminate those bacteria in humans. Other examples of non-traditional approaches include adding decoy targets to prevent bacterial pathogens from producing disease, enhancing human immune responses to pathogens, and developing drugs that incapacitate the pathogen's ability to adapt and compete. For more information on NIAID's research in this area, please see the recent report [NIAID's Antibacterial Resistance Program: Current Status and Future Directions](#).

The 24 phased innovation awards were made to 18 academic institutions and three industrial organizations. The awards provide support for two years with the possibility of three additional years of funding for the most accomplished projects.

Dr. Jason Gill, Assistant Professor of Animal Science, and with the Center for Phage Technology, has been named recipient of one of the 24 phased innovation awards, with Teas A&M AgriLife Research project - Development of Therapeutic Bacteriophages against Carbapenemase-Resistant *Klebsiella Pneumoniae* –

See more at: [http://globalbiodefense.com/2016/01/12/niaid-awards-5m-for-non-traditional-bacterial-infection-treatments/?utm\\_source=Texas+A%26M+AgriLife+Research+E-News%2C+February+2016&utm\\_campaign=FebENews&utm\\_medium=email#sthash.GVsirJJ1.dpuf](http://globalbiodefense.com/2016/01/12/niaid-awards-5m-for-non-traditional-bacterial-infection-treatments/?utm_source=Texas+A%26M+AgriLife+Research+E-News%2C+February+2016&utm_campaign=FebENews&utm_medium=email#sthash.GVsirJJ1.dpuf)

The Awards which provide support for two years with the possibility of three additional years of funding for the most accomplished projects

### **PRESIDENT'S 2016 MERITORIOUS SERVICE AWARD WINNERS ANNOUNCED.**

All university employees, as well as Chartwells and SSC Service Solutions employees, are invited to the 29th annual award ceremony honoring these outstanding staff members. The ceremony will be held on Monday, Feb. 29 at 3:30 pm. in



MSC Bethancourt Ballroom. A reception with refreshments will be held following the ceremony and will serve as the official kick-off of Staff Appreciation Week at Texas A&M. From among the winners of this year's Award – three of Biochemistry's Administrative Staff Members have been named as recipients of the Award. In announcing the three Staff Members Dr. Gregory D. Reinhart, Professor and Head of the Department stated “Please join me in congratulating **Terry Lovingshimer, Jenny Ponzio, and Tillie Rausch** who have been selected to receive the 2015-2016 President's Meritorious Service Award. They are among only 25 individual recipients from throughout campus, and the only recipients from our College, to receive this award this year.

Along with **Terry, Jenny, and Tillie, Ms. Mary**, an employee of Chartwells, and a long time member of the Bio/Bio family, in the Ag Café, has been named as a recipient of this prestigious award. These four could not be more deserving of the recognition.

Each individual recipient receives a \$1,000 cash award, a commemorative plaque, and a lapel pin. The teams will be recognized with a plaque for departmental display. Each member of the teams receives a cash award of \$200, a framed certificate of recognition and a lapel pin. Awards are funded through the generosity of The Association of Former Students and the program is coordinated by Texas A&M Human

Resources. Visit <http://employees.tamu.edu/employee-recognition/pmsa> for additional information.



## TEXAS A&M TODAY

### STUDENTS FIND NOVEL WAYS TO COMMUNICATE RESEARCH

February 8, 2016

Drawing an analogy between antibiotic-resistant bacteria and the demolition of Kyle Field was apparently clever enough for Texas A&M University doctoral candidate Anthony Sperber to walk away with several titles, including overall winner, at this year's



*The competition's overall winner Anthony Sperber receives his award from Associate Provost for Graduate Studies, Dr. Karen Butler-Purry*

Three-Minute Thesis (3MT®) competition. Congratulations to Anthony Sperber, 3<sup>rd</sup> Year, Grad student with the department of Biochemistry & Biophysics, in the laboratory of Dr. Jennifer Herman. The title of Anthony's 3MT, "Identification and Characterization of Proteins Affecting Cell Wall Synthesis," which summarized research in fighting antibiotic resistance, likening the targeting of bacterial cells to building construction. "We used to fire the construction workers," Sperber said in making his analogy. "Now we can target the engineers."

The students were judged by a panel of experts from across campus, as well as the audience, who selected People's Choice winners via texting. In the end, Sperber was declared the winner and People's Choice winner in the doctoral category, and the competition's overall winner, who will move on to regional competition in the coming weeks.



Three Minute Thesis (3MT®) is a research communication competition developed by The University of Queensland (UQ). Graduate students have three



minutes to present a compelling oration on their thesis and its significance. 3MT is not an exercise in trivializing or "dumbing down" research, but rather challenges students to consolidate their ideas and research discoveries to present concisely to a non-specialist audience. The competition focuses on excellence in communication, challenging graduate students to translate key research results and their significance to lay audiences in three minutes or less. [Check out this article in The Scientist Magazine](#) to learn more about the development of the 3MT competition and its adaption in the United States.

#### 3MT at Texas A&M University

At Texas A&M, participation in the 3MT competition provides a valuable high-impact learning experience for graduate students and is part of the [G.R.A.D. Aggies](#) professional development program. An important aspect of the Texas A&M 3MT is strengthening graduate students' research communication skills. Therefore, OGAPS hosts several development sessions to give students opportunities to learn about effective communication. A preliminary competition is held to determine who will advance as finalists in the Texas A&M 3MT. To further boost student development, judges in the preliminary round provide immediate feedback to students regarding their presentation and communication skills. Once students are selected to advance to the final competition, they will participate in another development session to further fine tune their communication skills. The winner of the Texas A&M 3MT Final Competition advances to the regional competition held each spring at the Conference of Southern Graduate Schools Annual Meeting.

Students may elect to receive credit towards the [G.R.A.D. Aggies Professional Development Certificate](#) for participating in the 3MT Competition. Students who participate in the Preliminary Competition will receive 2 Professional Development Units (PDUs) towards their certificate and an additional 1 PDU for attending a development session prior to competing in the Preliminary Competition. The total possible points students can accumulate for participation in the development sessions and Preliminary Competition is 3 PDUs. Students who advance to the Texas A&M 3MT Final Competition will receive 1 additional PDU for participation in the finals.



The Office of the President along with Human Resources, University Staff Council, SSC and Chartwells, invite all Texas A&M University staff\* to participate in Staff Appreciation Week, beginning Monday, Feb. 29!

Our success at Texas A&M is a direct result of your hard work and dedication, day in and day out. Without you, our university would not be the world-class research institution it is today.

Staff Appreciation Week will be full of fun and engaging activities designed to ensure you get the recognition and professional development opportunities you so richly deserve.

Come and enjoy any of the activities planned and **be sure to Tweet your event pics using #SAW2016.**

For questions about Staff Appreciation Week events and contests, contact Mary Schubert, Office of the President, at [mschubert@tamu.edu](mailto:mschubert@tamu.edu) or 979-845-7978.

*\*Participation in SAW 2016 events, prize drawings, and social media contest is extended to current staff at Texas A&M University, as well as Texas A&M branch campuses, affiliated agencies, and local System staff. SSC and*

Chartwells employees are eligible to participate in SAW events and prize drawings, with the exception of the social media contest which is subject to restrictions based on SAW 2016 funding sources.

## STAFF APPRECIATION WEEK EVENTS

### President's Meritorious Service Awards & Kick-off of Staff Appreciation Week

**Monday, Feb. 29, MSC** Bethancourt Ballroom

Ceremony: 3:30 - 5:00 p.m. Reception: 5:00 - 6:30 p.m.

The President's Meritorious Service Awards, proudly supported by the Association of Former Students, recognize outstanding individuals and teams for their meritorious service to the university. This year, the awards have been expanded to include more winners and larger awards. There will be 25 individual winners and two teams; each individual recipient will receive a \$1,000 cash award, a commemorative plaque and a lapel pin, and each team member will receive a \$200 cash award, a lapel pin and a framed certificate of recognition. A reception with food and drinks will follow the ceremony. For more information, [visit the PMSA online](#). This event is also the Kick-off of Staff Appreciation Week at Texas A&M! RSVP to attend.

### President Young's Backyard Picnic

**Tuesday, March 1**, East Quad, located on the lawn behind the Jack K. Williams Administration Building 11:30 a.m. - 2:30 p.m.

Wear your favorite Texas A&M logo attire and jeans and head over to President Young's Backyard Picnic for a variety of fun activities and prizes! Enjoy a hamburger and hot dog lunch provided by Chartwells. We'll have henna and airbrush tattooing, games and inflatables, including Knockerball, basketball, a bungee run and a Velcro wall. Plus a live broadcast by Candy 95! Snap pics with your favorite co-workers in our photo booth, which has a touch screen that enables full autonomous control and prints with Texas A&M logos. Be sure to meet and chat with President and Mrs. Young – they would love to thank staff members in person! RSVP for Picnic.

**Wellness Works! Maroon & White Wellness Walk, Ending with a Rally at Rudder Plaza. Wednesday, March 2**, Walk begins at 11:30 a.m. Rally at noon.

Wear either maroon or white workout gear and join the Wellness Walk to celebrate wellness! Meet for warmup at 11:30 a.m. The Maroon Team will meet on the front steps of the Jack K. Williams Administration Building, and the White Team will meet in Wehner Plaza, on the West Campus. We'll all come together for a rally at Rudder Plaza at noon! RSVP for Wellness Walk. Post flyer in your office – <http://employees.tamu.edu/media/758590/wellnesswalk2016flyer.pdf>

**Happy Brain, Happy Life: Strategies for Managing Stress, Thursday, March 3.** Morning session: [HPEB](#) 30. 8:30 - 10:30 a.m. TTVN Live Webcast CH 150. Afternoon session: [MSC](#) 2404, 3:00 - 5:00 p.m.

**Department Appreciation Day, Friday, March 4.**

Friday, March 4 has been set aside for individual units to host special appreciation events/activities within their respective offices. The theme of these unit-level events/activities is "Aggie Spirit." President Young is encouraging 100 percent participation in unit-hosted events/activities and is adding an extra incentive to encourage participation. One unit will be awarded a \$1,500 grant to be used for future staff appreciation and/or professional development efforts in 2016. In addition to the grant, one staff member from the winning unit will be invited to serve on the following year's SAW planning committee.

**Staff Saturday on Kyle Field, Saturday, March 5. 10:00 a.m. – 1:00 p.m.**

Food, Fun and Family! More details coming soon.

So, how does your unit enter to win? Units are invited to share photos of their department events on [Texas A&M Human Resources' Facebook page](#) using #SAW2016, with captions detailing their appreciation for staff as an integral part of the Aggie Family. All photo submissions made to HR's Facebook page on Friday, March 4 will be entered into a random drawing for the grant (each event constitutes one entry). The Staff Appreciation Week Planning Committee will randomly select the winner at the end of SAW 2016 and the winner will be announced on the SAW website on Monday, March 7! For full contest rules and guidelines, please visit: <http://www.tamu.edu/saw2016/contest-rules/>.

Start planning your departmental function NOW!

View Recognition Tools and Tips here: <http://employees.tamu.edu/employee-recognition/resources/>

### UPCOMING EVENTS IN BIO/BIO

Faculty Meeting, 3:30PM, Rm N127	February 22
Annual Bio/Bio Chili/Bake Cook Off	February 22
12 Noon, Room 106A	
Fire Drill Bio/Bio Bldg #1507 - 3:30p.m.	February 22
Fire Drill NMR Bldg # 1525 - 3:30 p.m.	February 29
Faculty & Staff Spring Break	March 17 & 18