



Awards and Recognitions



Dr. Rajeev Azad

Dr. Rajeev Azad, Assistant Professor in Biological Sciences, is the recipient of an Early Career Award from the Mathematical Biosciences Institute (MBI). This award, which comes with a \$20,000 grant, will enable Dr. Azad to spend the 2016 Spring Semester at MBI, where he will participate in the MBI emphasis program on Dynamics of Biologically Inspired Networks.

Dr. Richard Dixon, University Distinguished Research Professor, was elected Fellow of the National Academy of Inventors. Dr. Dixon also was named among the most highly-cited authors in the journals *Plant Physiology* and *Plant Cell* during the period 2009-2013.



Dr. Richard Dixon

Dr. Rebecca Dickstein, Professor in Biological Sciences, was appointed as an American Society for Biochemistry and Molecular Biology Education Fellow.



Dr. Rebecca Dickstein

Congratulations to UNT Biological Sciences alumnus, **Dr. Joe Louis** (PhD 2011; former student of Dr. Jyoti Shah), Assistant Professor at University of Nebraska, who was recognized by the American Society of Plant Biologists with the Eric E. Conn Young Investigator Award for his significant contributions to the field of plant-insect interactions, and his demonstrated excellence in outreach, public service, mentoring and teaching.



Dr. Joe Louis



Dr. Jyoti Shah

Dr. Jyoti Shah was appointed University Distinguished Research Professor. This award recognizes tenured faculty at the rank of Professor at UNT who have achieved an exceptional record of creative activities and/or research productivity and who demonstrate a record of continued extraordinary productivity.

Kudos to **Garima Saxena** and **Ravi Shanker Pandey**, graduate students mentored by Drs. Stevens Brumbley and Rajeev Azad, whose poster "*Impact of horizontal gene transfer in the evolution of *Galdieria sulphuraria* 074W*" was awarded the second prize in the graduate level poster competition at the Texas Branch Spring Meeting of the American Society for Microbiology, which was held in New Braunfels, TX (March 26 – 28, 2015).



Garima Saxena Ravi Shanker Pandey

Other News

Dr. James Kennedy, Regent's Professor in Biological Sciences, spent a month in Antarctica as an international collaborator on the 51st Antarctic Science Expedition (ECA), organized/funded by the Chile Antarctic Institute (INACH) and a grant awarded by the Chilean funding agency FONDECYT. This research team was led by Dr. Tamara Contador (a former PhD student of Dr. Kennedy at UNT), University of Magallanes. This expedition, which was co-sponsored by the Chilean Navy aboard the AP-41 transport vessel Aquiles, conducted research in the South Shetland Islands and the northern section of Antarctica. On board the Aquiles where 40 Chilean and international scientists, who worked on 20 different projects focusing on the study of geology, entomology, microbes and plants in the area. The aim of the plant projects was to find and assess the potential applications for the pharmaceutical, textile, and food industries. Dr. Kennedy's research focused on the Ecophysiology of the Antarctic Midge (Diptera: Chironomidae: *Parochlus steinenii*) as a long term monitor of climate change. This grant, which continues for another 2 years, will facilitate the return of Dr. Kennedy to Antarctica again next year to expand this research.



The Antarctic Midge



Dr. Jim Kennedy at work in Antarctica

Dr. Sam Atkinson's (Regent's Professor in Biological Sciences) research was highlighted in the February 2015 issue of the UNT Research Magazine (Vol. 24, pp. 30-33) and on UNT's website: <http://research.unt.edu/research-spotlight/aquatic-ecosystems>

Waters Corporation and the Center for Innovation for Metabolomics and Metabolic Signaling Research at UNT, held a meeting entitled "UPC² and Mass Spectrometry in the Modern Laboratory" on February 4, 2015 at UNT. **Dr. Vladimir Shulaev**, Professor in Biological Sciences, was a guest lecturer at this meeting. <http://www.waters.com/waters/eventInstance.htm?eiid=134827390>.



Dr. Sam Atkinson

Dr. David Hoeinghaus, Assistant Professor in Biological Sciences, was appointed to the Editorial Board of *Neotropical Ichthyology*, the scientific journal of the Brazilian Society of Ichthyology.

Dr. Guenter W. Gross, Regent's Professor in Biological Sciences, was invited by the Hindawi Publishing Corporation to be the lead Guest Editor for a new issue of the Journal of Computational Intelligence and Neuroscience under the title of "Internal Network Dynamic". Other guest editors are: Dr. Paolo Grigolini (UNT, Physics); Dr. Enric Claverol-Tinture, Director General of the Catalan Foundation for Research and Innovation, Barcelona, Spain, and Dr. Jaap van Pelt, VU University Amsterdam, The Netherlands.

Outreach Activities

Students from several DFW area elementary schools (Blanton Elementary, Butterfield Elementary, E.P. Rayzor Elementary, Highland Village Elementary, Newton Rayzor Elementary) and high schools (Ferris High School, Newman Smith High School) were hosted by **Drs. Brian Ayre and Jyoti Shah** during their visit to the Department of Biological Sciences in November/December 2014 and January/February 2015 to learn about Plant Sciences research at UNT and its contribution to sustainability. These trips were organized by UNT sustainability.

Dr. Benjamin Dubansky, postdoctoral fellow in Dr. Warren Burggren's research group, participated on a National Academy of Sciences (NAS) panel (December 2015) that was aimed at communicating science through art to evoke public interest in both fields, and at promoting discussion of scientifically relevant current issues. In addition, he gave a talk entitled, "*A Natural Experiment*" about his experiences following the Deepwater Horizon oil spill and the intersection of art and science.



Elementary school students on a UNT sustainability tour of Plant Sciences

Thesis and Dissertations

Jason Gibson successfully defended his MS thesis in March 2015. Thesis title: *Neurotoxicity of the industrial solvent 4-methylcyclohexanemethanol: involvement of the GABA receptor*. Dr. Guenter W. Gross, Regents Professor in Biological Sciences was his advisor.

Katelyn Holmes successfully defended her MS thesis in March 2015. Thesis title: *Cytotoxicity and functional toxicity of mefloquine and the search for protective compounds*. Advisor: Dr. Guenter W. Gross, Regents Professor in Biological Sciences was her advisor.

New Faculty/Staff Appointments and Visiting Scientists

Dr. Hailian Yang, Associate Professor, China Agricultural University, Beijing, is a visiting researcher in Dr. Richard Dixon's lab on a one year fellowship from the Chinese government. She is working on biochemical pathways to the flavor compound vanillin in the vanilla orchid.

Recent Publications

Baxter, H.L., Poovaiah, C.R., Yee, K.L., Mazarei, M., Rodriguez, M. Jr., Thompson, O.A., Shen, H., Turner, G.B., Decker, S.R., Sykes, R.W., Chen, F., Davis, M.F., Mielenz, J.R., Davison, B.H., Dixon, R.A., and Stewart, C.N. Jr. (2015) Field evaluation of transgenic switchgrass plants overexpressing P_vMYB4 for reduced biomass recalcitrance. *BioEnergy Research*. DOI 10.1007/s12155-014-9570-1. <http://link.springer.com/article/10.1007%2Fs12155-014-9570-1#page-1>

Blount, J.W., Redan, B.W., Ferruzzi, M.G., Reuhs, B.L., Cooper, B.R., Harwood, J.S., Shulaev, V., Pasinetti, G., and Dixon, R.A. (2015) Synthesis and quantitative analysis of plasma-targeted metabolites of catechin and epicatechin. *J Agric Food Chem*. 63:2233-2240. <http://pubs.acs.org/doi/abs/10.1021/jf505922b>

Calderon, N.K., Ledee, D., Gopal, K., and Gross, G.W. (2014) Cortical networks respond with major activity changes to sildenafil citrate (Viagra). *Proceedings of the 9th International Meeting on Substrate Integrated Microelectrode Arrays*. Pp. 116-117.

Calvin, Wu C., Gopal, K.V., Moore, E.J., and Gross, G.W. (2014) Antioxidants L-carnitine and D-methionine modulate neuronal activity through GABAergic inhibition. *J. Neurotransmission*. DOI 10.1007/s00702-014-1170-x <http://link.springer.com/article/10.1007%2Fs00702-014-1170-x#page-1>

Condini, M.V., Hoeinghaus, D.J., and Garcia, A.M. (2015) Trophic ecology of dusky grouper *Epinephelus marginatus* (Actinopterygii, Epinephelidae) in littoral and neritic habitats of southern Brazil as elucidated by stomach contents and stable isotope analyses. *Hydrobiologia* 743: 109-125. <http://link.springer.com/article/10.1007%2Fs10750-014-2016-0#page-1>

Faure, L., Cavazos, R., Khan, B.R., Petros, R.A., Koulen, P., Blancaflor, E.B., and Chapman, K.D. (2015) Effects of synthetic alkamides on *Arabidopsis* fatty acid amide hydrolase activity and plant development. *Phytochemistry* 110:58-71. doi: 10.1016/j.phytochem.2014.11.011. PMID: 25491532 <http://www.sciencedirect.com/science/article/pii/S0031942214004944>

Galla, S.J. and Johnson, J.A. (2015) Differential introgression and effective size of marker type influence phylogeographic inference of a recently divergent avian group (Phasianidae: Tympanuchus). *Molecular Phylogenetics Evolution* 84: 1-13. <http://www.sciencedirect.com/science/article/pii/S1055790314004308>

- Garcia, A.M., Ladage, M.L., Dumesnil, D.R., Zaman, K., Shulaev, V., Azad, R.K., and Padilla, P.A. (2015) Glucose induces sensitivity to oxygen deprivation and modulates insulin/IGF-1 signaling and lipid biosynthesis in *Caenorhabditis elegans*. Genetics. Advance Access published Mar 10, 2015. pii: genetics.115.174631. <http://www.genetics.org/content/early/2015/03/10/genetics.115.174631.long>
- Hinze, L.L., Horn, P.J., Kothari, N., Dever, J.K., Frelichowski, J., Chapman, K.D., and Percy, R.G. (2015) Nondestructive measurements of cottonseed nutritional trait diversity in the U.S. national cotton germplasm collection. Crop Science. 55:770-782 doi: 10.2135/cropsci2014.04.0318. <https://www.crops.org/publications/cs/abstracts/55/2/770>
- Holmes, K.E., Smith, D.C., and Gross, G.W. (2014) Cytotoxicity of the antimalarial drug mefloquine and novel protection by quinolinic acid. Proceedings of the 9th International Meeting on Substrate Integrated Microelectrode Arrays. Pp 109-111.
- Jones, M.D., Isaac, G., Astarita, G., Aubin, A., Shockcor, J., Shulaev, V., Legido-Quigley, C., and Smith, N. (2015) Lipid class separation using UPC²/MS. Waters Application Note 720004579en. <http://www.waters.com/waters/library.htm?lid=134722800&cid=511436>
- Keereetawee, J., Blancaflor, E.B., Hornung, E., Feussner, I., and Chapman, K.D. (2015) Lipoxygenase derived 9-hydro(pero)xides of linoleoylethanolamide interact with ABA signaling to arrest root development during Arabidopsis seedling establishment. Plant J. 2015 Mar 9. doi: 10.1111/tpj.12821. [Epub ahead of print] PMID: 25752187. <http://onlinelibrary.wiley.com/doi/10.1111/tpj.12821/abstract>
- Louis, J., and Shah, J. (2015) Plant defense against aphids: The PAD4 signaling nexus. J. Experimental Botany. 66: 449-454. <http://jxb.oxfordjournals.org/content/66/2/449>
- Lu, N., Carter, J.D., Boluarte Medina, T., Holt, S.H., Manrique-Carpintero, N.C., Upham, K.T., Pereira, A., Shulaev, V., and Veilleux, R.E. (2014) Transposon based activation tagging in diploid strawberry and monoploid derivatives of potato. Plant Cell Reports 33: 1203-1216. <http://link.springer.com/article/10.1007%2Fs00299-014-1610-y>
- Pancrazio, J.P., Keefer, E., Gopal, K., and Gross, G.W. (2014) Botulinum toxin suppression of CNS network activity in vitro. J. Toxicology Article ID 732913, 10 pages. doi:10.1155/2014/732913. <http://www.hindawi.com/journals/jt/2014/732913/>
- Pizzio, G.A., Paez-Valencia, J., Khadilkar, A.S., Regmi, K.C., Patron-Soberano, A., Zhang, S., Sanchez-Lares, J., Furstenau, T., Li, J., Sanchez-Gomez, C., Valencia-Mayoral, P., Yadav, U.P., Ayre, B.G., and Gaxiola, R.A. (2015) Novel role of the type I H⁺-PPase (proton-pumping pyrophosphatase) in phloem loading in Arabidopsis. Plant Physiology 167: 1541-1553. <http://www.plantphysiol.org/content/167/4/1541.full>
- Price, E.R., Brun, A., Caviedes-Vidal, E., and Karasov, W. H. (2015) Digestive adaptations of aerial lifestyles. Physiology 30: 69-78. <http://physiologyonline.physiology.org/content/30/1/69>
- Shulaev, V., Ghaste, M., Lai, S., Salazar, C., Suzuki, N., Crossley, J., Kaneez Coudhury, F., Zaman, K., Mittler, R., Langridge, J., Plumb, R., Mattivi, F., and Astarita, G. (2015) Metabolic phenotyping using atmospheric pressure gas chromatography-MS. Waters Application Note 720005298en. http://www.waters.com/waters/library.htm?locale=en_US&lid=134832772
- Smith, D.C., and Gross, G.W. (2014) An MEA-based model for rapid acceleration injury to neuronal networks and studies of recovery. Proceedings of the 9th International Meeting on Substrate Integrated Microelectrode Arrays. 156-157.
- Wu, C., Gopal, K., Lukas, T.J., Gross, G.W., and Moore, E.J. (2014) Pharmacodynamics of potassium channel openers in cultured neuronal networks. European J. Pharmacology 732: 68-75. <http://www.sciencedirect.com/science/article/pii/S0014299914002118>
- Yurchenko, O.P., Park, S., Ilut, D.C., Inmon, J.J., Millhollon, J.C., Liechty, Z., Page, J.T., Jenks, M.A., Chapman, K.D., Udall, J.A., Gore, M.A., and Dyer, J.M. (2014) Genome-wide analysis of the omega-3 fatty acid desaturase gene family in *Gossypium*. BMC Plant Biology 2014 Nov 18; 14:312. doi: 10.1186/s12870-014-0312-5. <http://link.springer.com/article/10.1186%2Fs12870-014-0312-5>

Patent Issued

Compositions and methods for improved plant feedstock. H. Shen, F. Chen and R. A. Dixon. US patent number 8,901,371 B2. Issued December 2, 2014.

Extramural Grants and Contracts

Biosynthesis, regulation and engineering of C-Lignin. National Science Foundation-Integrated Organismal Systems. PI: R.A. Dixon (UNT); \$833,772

Experimental determination of host suitability for six state-threatened mussel species. Texas Parks and Wildlife Department; PI: Hoeinghaus (UNT), Co-PI: Williams (UT Tyler); \$73,660

Modeling crop failure potential in Late Pueblo III Mesa Verde villages. National Science Foundation. PI: L. Nagaoka; Co-PIs: S. Wolverton, F. Pan, and S. Atkinson (UNT); \$116,206.

Plant based sesquiterpenes. Chromatin Inc, DOE-ARPAe. PI: S. Brumbley (UNT), Co-PI: R.A. Dixon (UNT); \$728,000

Targeting host defense mechanism for enhancing FHB resistance in wheat. USDA-ARS and US Wheat and Barley Scab Initiative; PI: J. Shah, J. (UNT); Co-PI: H.N. Trick (Kansas State University); \$43,732

Transforming row crops to express condensed tannins. Grasslanz Technology Ltd, New Zealand. PI: R.A. Dixon (UNT); \$570,000

Seminars/Talks

An abietane diterpenoid as a signaling molecule in plant development and defense. Invited seminar by Dr. Jyoti Shah (UNT) in the Biochemistry and Molecular Biology Program, Michigan State University, East Lansing, MI; March 12, 2015.

An approach for comparing qPCR data across species, applied to paracellular nutrient absorption. Society for Integrative and Comparative Biology, Annual Meeting, West Palm Beach, FL, January 3-7 2015. Contributed talk by Dr. Edwin Price (UNT). Co-authors, K. Rott, E. Caviedes-Vidal and W. Karasov.

Contribution of horizontal gene transfer to microbial evolution and pathogenicity. Department of Materials and Life Sciences, Sophia University, Tokyo, Japan. December 2014. Invited seminar by Dr. Rajeev Azad (UNT).

*Deciphering horizontal gene transfer in the evolution of *Galdieria sulphuraria* 074W.* 2015 Texas Branch Spring Meeting of the American Society for Microbiology, March 26 – 28, 2015, New Braunfels, TX. Oral presentation by graduate student Garima Saxena (Azad and Brumbley lab) (UNT). Co-authors: R. S. Pandey (Ph.D. Student), S. Brumbley, R. K. Azad.

Detecting evolutionary strata on the human X chromosome in the absence of gametologous Y-linked sequences. International Conference on Intelligent Biology and Medicine (ICIBM 2014), December 4-6, 2014, San Antonio, TX. Highlights Track talk by Dr. Rajeev Azad (UNT). Co-authors: R. S. Pandey (Ph.D. student), M. A. Wilson Sayres.

Detecting evolutionary strata on the human X chromosome in the absence of gametologous Y-linked sequences. GIW / ISCB-Asia 2014, December 15 – 17, 2014, Tokyo, Japan. Highlights Track talk by Dr. Rajeev Azad (UNT). Co-authors: R. S. Pandey (Ph.D. student), M. A. Wilson Sayres.

*Evolution of Virulence and Drug Resistance in *Pseudomonas aeruginosa* LESB58.* Texas Branch Fall Meeting of the American Society for Microbiology (Texas ASM) held at Houston from November 6 - 8, 2014. Oral presentation by graduate student Mehul Jani (Azad lab) (UNT). Co-authors: R. K. Azad.

Exploring candidate genes for catechyl lignin biosynthesis via RNA-Seq data in two distinct plant species. International Symposium on Wood Science and Technology 2015, Cell Formation and Wood Structures Session, Tokyo, Japan, March 16, 2015. Invited talk by Dr. Fang Chen (UNT). Co-authors, Xiaolan Rao and Richard A. Dixon.

Integrating life-history and ecomorphology: towards a traits-based response and effect framework for freshwater fishes. XXI Encontro Brasileiro de Ictiologia (Bi-Annual Conference of the Brazilian Society of Ichthyology); Recife, Brazil. Invited seminar by Dr. David Hoeinghaus (UNT) as part of the Symposium 'Testing ecological concepts using traits-based approaches' February 2015.

Lipid signaling in plant response to biotic stress. Invited talk by Dr. Jyoti Shah (UNT) at the Gordon Research Conference: Plant Lipids: Structure, Metabolism, and Function Gordon Research, Feb 1-6, 2015, Galveston, TX. Co-authors: Louis, J., Sarowar, S., Katarzyna, L.-K., Behera, S., Keereetaweep, J., and Welti, R.

Lignin Bioengineering for advanced biofuel and bioproducts. Graduate School of Bioagricultural Sciences/School of Agricultural Sciences, Nagoya University, Nagoya, Japan. March 19, 2015. Invited seminar by Dr. Fang Chen (UNT).

*Metabolism and Action of N-Acylethanolamines in *Arabidopsis* Seedlings.* Annual Meeting of the American Society of Biochemistry and Molecular Biology. Plant Lipid Metabolism Session Boston, MA, March 28-April 1, 2015. Invited talk by Dr. Kent Chapman (UNT). Co-authors, Jantana Keereetaweep (Ph.D. Student), Elison Blancaflor.

Nerve cell networks on microelectrode arrays: quantification and medical application of network dynamics. 2014 IEEE Medical Device Symposium, University Texas at Dallas, Richardson, TX, November 7, 2014. Invited presentation by Dr. Guenter W. Gross (UNT).

Overcoming recalcitrance in lignocellulosic sources for biofuel. US Department of Energy, Genomic Science Contractors-Grantees Meeting, XIII/USDA-DOE Plant Feedstock Genomics for Bioenergy Meeting, Tysons, Virginia, February 2015. Talk by Dr. Richard A. Dixon.

Phylogeny independent methods for quantifying horizontal gene flow. 2015 Texas Branch Spring Meeting of the American Society for Microbiology, March 26 – 28, 2015, New Braunfels, TX. Invited talk by Dr. Rajeev Azad.

Source/sink relations and pathways for carbohydrate transport and targeting in cotton. 2015 Beltwide Cotton Conferences, San Antonio, TX, January 5-7, 2015. Invited talk by Dr. Brian Ayre.

The influence of oil exposure history and population genetic variation on the sensitivity of Gulf killifish embryos to crude oil. The Gulf of Mexico Research Initiative Annual Conference-Coastal Ecosystems Four Years after the DWH Oil Spill: What's Changed? Houston, TX. February 19, 2015. Invited Talk by Dr. Benjamin Dubansky. Co-authors: Fernando Galvez, Christopher Green, Charles Brown and Warren Burgren

Ultra-fast transcriptional responses in plants. Session- Biochemistry, Cell Signaling, and Drug Discovery, 70th American Chemical Society Southwest Regional Meeting 2014 (SWRM 2014), November 19 - November 22, 2014, Fort Worth, TX. Invited talk by Dr. Rajeev Azad. Co-authors: N. Suzuki, A. Baxter, A. Devireddy (Ph.D. student), G. Miller, E. Shulaev, V. Shulaev, R. Mittler.

Unraveling the microbial world using bioinformatics approaches. Department of Mathematics, Texas A & M, Commerce, TX. November 10, 2014. Invited seminar by Dr. Rajeev Azad.

Using lipidomics to probe lipid metabolism. Invited seminar by Dr. Ruth Welti (Kansas State University) at the Mass Spectrometry and Targeted Proteomics Symposium, Columbia, MO, Nov 12-15, 2014. Co-authors: Vu, H., Shiva, S., Roth, M., Tamura, P., Li, M., Sarowar, S., Gadbury, G., Wang, X., and Shah, J (UNT).

Conference Presentations

Alves dos Santos, D., Gomes, L.C., and Hoeninghaus, D.J. (2015) Spatial scale and the invasion paradox: A test using Neotropical floodplain fish assemblages. XXI Encontro Brasileiro de Ictiologia (Bi-Annual Conference of the Brazilian Society of Ichthyology), February 2015, Recife, Brazil.

Cai, Y., McClinchie, E.A, Price, A.M., McDaniel, C., Burke, T., Yurchenko, O., Park, S., Nguyen, T.N., Watt, S., Gidda, S.K., Mullen, R.T., Dyer, J.M., Chapman, K.D. (2015) Expression of Mouse Fat Storage-Inducing Transmembrane Protein 2 (FIT2) Promotes Lipid Droplet Accumulation in Plants. Gordon Research Conference- Plant Lipids, Galveston, TX, February 1-6, 2015.

Choudhary, A., Trahan, C., Cho, H., Azad, R.K., Choudhary, M. (2014) Abundance of Horizontally Transferred Genes in *Rhodobacter sphaeroides*. Texas Branch Fall Meeting of the American Society for Microbiology (Texas ASM) held at Houston from November 6–8, 2014. Poster presentation by TAMS student Anushka Choudhary (Azad lab).

Gibson, J.R., and Gross, G.W. (2014) Quantification of functional and cytotoxicity of 4-Methylcyclohexanemethanol (4-MCHM). Society for Neuroscience abstract # 145.18/W24. November 2014.

Hamilton, K, Gopal KG, Gross GW (2015) Gentamicin Sensitizes GABAA Receptors in Cultured Auditory Cortex Tissue. Research Poster at AudiologyNOW!, San Antonio, TX, January 2015.

Holmes K.E., Smith, D., Gross, G.W. (2014) Toxicity of the antimalaria drug mefloquine and novel protection by quinolinic acid. Society for Neuroscience abstract # 227.04/Q5, November 2014.

Jani, M., Azad, R.K. (2015) Evolution of drug resistance in Methicillin resistant *Staphylococcus aureus*. 2015 Texas Branch Spring Meeting of the American Society for Microbiology, New Braunfels, TX, March 26–28, 2015. Poster presentation by graduate student Mehel Jani (Azad lab).

Keereetaweep, J., Khan, R., Blancaflor, E.B., Azad, R., Feussner, I., and Chapman, K.D. (2015) Metabolism and Molecular Targets of Polyunsaturated *N*-Acylethanolamines in Arabidopsis Seedlings. Gordon Research Conference - Plant Lipids, Galveston, TX, February 1-6, 2015.

Pandey, R.S., Azad, R.K. (2014) A multiple gene model framework for prokaryotic gene prediction. Texas Branch Fall Meeting of the American Society for Microbiology (Texas ASM) held at Houston from November 6 - 8, 2014. Poster presentation by graduate student Ravi Shanker Pandey (Azad lab).

Sarowar, S., Alam, S., Silvaraman, V., Lee, H., Tyagi, N., Trick, H.N., and Shah, J. (2014) Engineering resistance against *Fusarium graminearum*. 2014 National Fusarium Head Blight Forum. St. Louis, MO, December 7-9, 2014.

Saxena, G., Pandey, R.S., Brumbley, S., Azad, R.K. (2015) Impact of horizontal gene transfer in the evolution of *Galdieria sulphuraria* 074W. 2015 Texas Branch Spring Meeting of the American Society for Microbiology, New Braunfels, TX, March 26-28, 2015. Poster presentation by graduate student Ravi Shanker Pandey (Azad lab). *Awarded second prize in the graduate level poster competition.

Smith, D., and Gross, G.W. (2014) Mild traumatic brain injury (TBI) in vitro: Network activity changes and parameters of recovery. Society for Neuroscience abstract 421.07/X8. November 2014

Sturtevant, D., Williams, K., Verbeck, G., and Chapman, K.D. (2015) Matrix Assisted Laser Desorption Ionization-Mass Spectrometry (MALDI-MS) analysis of linoleoyl ethanolamide (NAE 18:2) in Arabidopsis thaliana seeds using lithium salts and gold nanoparticles. Gordon Research Conference- Plant Lipids, Galveston, TX, February 1-6, 2015.

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