



## Recognitions

University Distinguished Research Professor **Richard Dixon**, Professor **Ron Mittler** and Professor **Vladimir Shulaev** were named Clarivate Analytics 2017 Highly Cited Researcher in the category of Plant and Animal Science (<https://clarivate.com/hcr/2017-researchers-list/>).

Professor **Jannon Fuchs** delivered the keynote address at the annual NeuroNet retreat in Knoxville, TN, Nov. 19. The NeuroNet is an interdisciplinary organization of scientists and clinicians in East Tennessee. The title of Dr. Fuchs' talk was, "A Ciliocentric View of the Brain in Sickness and in Health." During her 3-day visit, Dr. Fuchs also met with students and faculty at the University of Tennessee in Knoxville.

Professor **Jannon Fuchs** was nominated by UNT for the National Council on Undergraduate Research Goldwater Scholars Faculty Mentor Award. This nomination was recently advanced to the Finalist level, and the winner will be chosen in February 2018.



Dr. Richard Dixon

Dr. Ron Mittler



Dr. Vladimir Shulaev Dr. Jannon Fuchs

## Staff Appointments

**Emma Fowler** joined the Department of Biological Sciences as an Office Support Associate. Emma will assist in coordinating travel, conference room scheduling, and developing the department's social media platform to attract, inspire and engage students. Emma has a B.A. in Psychology and practical experience in Epidemiology. She has applied her professional training to grass-roots economic development in rural Arkansas, and more recently to advocating for our local area homeless and domestic violence victims.

**Ken Marie Richards** joined the Department of Biological Sciences as an Administrative Specialist. As the Biology Stock Room manager, she will supervise and direct operations of the stockroom and coordinate supplies and equipment purchases for the Department. Ken Marie has 25 years of prior experience in Purchasing and Contract Management working for Texas State's Employees Retirement System.

**Brier Renken** joined the BioDiscovery Institute (BDI) as Senior Administrative Specialist. She will assist the BDI director in coordinating the activities of the BDI. Brier is an alumni of Texas Woman's University with a Bachelor's in Psychology. She has spent the last five years working primarily in staffing and recruitment.

**Martha Frantz** joined the BioDiscovery Institute (BDI) as Senior Research Analyst. She will assist the BDI faculty with grant funding, including post award reconciling of accounts and processing of cost transfers. Martha has been with the Department of Biological Sciences for 10 years, working in various staff positions. She will be going back to school this coming Fall to finish her Bachelor's Degree.

**Mandi Anderson** joined the BioDiscovery Institute (BDI) as Laboratory Facilities Manager. She will assist the BDI labs with supplies and equipment purchases. Mandi has 10 years of experience in the Department of Biological Sciences. Most recently, she was Administrative Coordinator for the Gulf of Mexico Research Initiative's RECOVER consortium at the University of North Texas.

**Crystal Garret-McEwen** joined the BioDiscovery Institute (BDI) as Administrative Specialist. She will work with hiring and updating changes to personnel, and serve as the liaison between BDI and Human Resources. She will also assist with travel and purchasing. Crystal has worked at UNT for nearly 10 years in various positions. Most recently, she worked in the Institute of Applied Science.

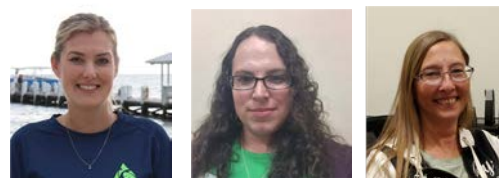
**Gail Shadle** joined the BioDiscovery Institute (BDI) as Greenhouse Manager. She will manage the BDI greenhouses, assist with USDA-APHIS permit applications, pest management, and greenhouse plant maintenance and sanitation as well as pesticide applications for which she holds a Private Pesticide Applicator's License. Gail has a Bachelor of Science degree in Biology/Chemistry and almost twenty years of plant biotechnology experience, with ten research publications.



Emma Fowler

Ken Marie Richards

Brier Renken



Mandi Anderson

Crystal Garret-McEwen

Gail Shadle

## Thesis and Dissertations

**Sarah F. Prewitt**, graduate student in Professor Brian Ayre's lab, successfully defended her PhD dissertation titled "*Phylogenetic and functional characterization of cotton (*Gossypium hirsutum*) CENTRORADIALIS/TERMINAL FLOWER1/SELF-PRUNING genes.*" As a postdoc in Mark Guiltinan's lab at Pennsylvania State University, Sarah is currently working on developing technologies for improvement of crops and sustainable development.



Sarah Prewitt



Ramiro Crego

**Ramiro Daniel Crego** successfully defended his PhD dissertation "*Niche Expansion of an Invasive Predator (*Neovison vison*), Prey Response, and Facilitative Interactions with Other Invasive Mammals at the Southern End of the Americas: Conservation Challenges and Potential Solutions*". Ramiro's graduate advisor was Professor Dr. Jaime Jiménez.

**Ahmad Sulaiman**, graduate student in University Distinguished Teaching Professor Lee Hughes lab, successfully defended his MS thesis "*Isolation and Characterization of Phages Infecting *Streptomyces azureus**".



Ahmad Sulaiman



Sattam Alodaliah

**Sattam Alodaliah** successfully defended his MS thesis "*The Generation of Recombinant *Zea mays* Spastin and Katanin Proteins for in vitro Analysis*". Sattam's graduate advisor was Dr. Amanda Wright.

## Recent Publications

Anich, N.M., Benson, T.J., Gerwin, J.A., Chartier, N.A., Reiley, B.M., Everitts, J.L., Bednarz, J.C., and Tolfree, S.F. (2017) Natal Philopatry and Juvenile Survival in Swainson's Warblers (*Limnothlypis swainsonii*). *Wilson J. Ornithology* 129:850–859.

Brejão, G.L., Hoenighaus, D.J., Pérez-Mayorga, M.A., Ferraz, S.F.B., and Casatti, L. (2017) Threshold responses of Amazonian stream fishes to timing and extent of deforestation. *Conservation Biology*, DOI: 10.1111/cobi.13061 <http://onlinelibrary.wiley.com/doi/10.1111/cobi.13061/abstract>

Briggs, A.G., Hughes, L.E., Brennan, R.E., Buchner, J., Horak, R.E.A., Katz Amburn, D.S., McDonald, A.H., Primm, T.P., Smith, A.C., Stevens, A.M., Yung, S.B., and Paustian, T.D. (2017) Concept Inventory Development Reveals Common Student Misconceptions about Microbiology. *Journal of Microbiology and Biology Education* 18(3). doi:10.1128/jmbe.v18i3.1319.

Diamante, G., Xu, E., Chen, S., Mager, E., Grosell, M., and Schlenk, D. (2017) Differential expression of microRNAs in embryos and larvae of mahi-mahi (*Coryphaena hippurus*) exposed to Deepwater Horizon oil. *Environmental Science & Technology Letters*. 4(12), 523-529. <http://pubs.acs.org/doi/abs/10.1021/acs.estlett.7b00484>

Gill, U.S., Uppalapati, S.R., Gallego-Giraldo, L., Ishiga, Y., Dixon, R.A. and Mysore, K.S. (2017). Metabolic flux towards (iso)flavonoid pathway in lignin modified alfalfa lines induces resistance against *Fusarium oxysporum* f. sp. *medicaginis*. *Plant, Cell and Environment*. doi 10.1111/pce.13093.

Hanauer, D.I., Graham, M.J., SEA-PHAGES<sup>1</sup>, Betancur, L., Bobrownicki, A., Cresawn, S.G., Garlena, R.A., Jacobs-Sera, D., Kaufmann, N., Pope, W.H., Russell, D.A., Jacobs, W.R., Sivanathan, V., Asai, D.J., and Hatfull, G.F. (2017) An Inclusive Research-Education Community (iREC): Impact of the SEA-PHAGES program on research outcomes and student learning. *PNAS* 114 (51): 13531-13536.

Lund, A.K. (2017) Oxidants and Endothelial Dysfunction. *Comprehensive Toxicology* (McQueen, C.A., ed). Elsevier: Vol 13.12, 252-281. <https://www.sciencedirect.com/science/article/pii/B9780128012383652509>

Mondal, H.A., Louis, J., Archer, L., Patel, M., Nalam, V. J., Sarowar, S., Sivapalan, V., Root, D. D., and Shah, J. *Arabidopsis thaliana ACTIN DEPOLYMERISING FACTOR 3* is required for controlling aphid feeding from sieve elements. *Plant Physiol*. DOI: <https://doi.org/10.1104/pp.17.01438>

Nelson, R.S., Stewart, Jr., C.N., Gou, J., Holladay, S., Gallego-Giraldo, L., Flanagan, A., Mann, D.G.J., Hisano, H., Wuddineh, W.A., Poovaiah, C.R., Srivastava, A., Biswal, A.K., Shen, H., Escamilla-Treviño, L.L., Yang, J., Hardin, C.F., Nandakumar, R., Fu, C., Zhang, J., Xiao, X., Percifield, R., Chen, F., Bennetzen, J., Udvardi, M., Mazarei, M., Dixon, R.A., Wang, Z-Y., Tang, Y., Mohnen, D. and Davison, B. (2017). Development and use of a switchgrass (*Panicum virgatum* L.) transformation pipeline by the BioEnergy Science Center to evaluate plants for reduced cell wall recalcitrance. *Biotechnology for Biofuels*. 10:309 <https://doi.org/10.1186/s13068-017-0991-x>

Paustian, T.D., Briggs, A.G., Brennan, R.E., Boury, N., Buchner, J., Harris, S., Horak, R.E.A., Hughes, L.E., Katz-Amburn, D.S., Massimelli, M.J., McDonald, A.H., Primm, T.P., Smith, A.C., Stevens, A.M., and Yung, S.B. (2017) Development, Validation, and Application of the Microbiology Concept Inventory. *Journal of Microbiology and Biology Education* 18(3). doi:10.1128/jmbe.v18i3.1320.

Pyc M, Cai Y, Gidda SK, Yurchenko O, Park S, Kretzschmar FK, Ischebeck T, Valerius O, Braus GH, Chapman KD, Dyer JM, Mullen RT (2017) Arabidopsis lipid droplet-associated protein (LDAP) - interacting protein (LDIP) influences lipid droplet size and neutral lipid homeostasis in both leaves and seeds. *Plant Journal* 92(6):1182-1201. doi: 10.1111/tj.13754.

Radhakrishnan, U., Alsrhani, A., Sundaramoorthi, H., Khandekar, G., Kashyap, M., Fuchs, J.L., Perkins, B.D., Omori, Y., Jagadeeswaran, P. (2017) Intraflagellar transport proteins are involved in thrombocyte filopodia formation and secretion. *Platelets*. 10:1-10.

Rao, X., Shen, H., Pattathil, S., Hahn, M., Gelineo-Albersheim, I., Mohnen, D., Pu, Y., Ragauskas, A., Chen, X., Chen, F., and Dixon, R.A. (2017). Dynamic changes in transcriptome and cell wall composition underlying brassinosteroid-mediated lignification of switchgrass suspension cells. *Biotechnology for Biofuels* 10, 266. doi: 10.1186/s13068-017-0954-2

Shah J., Alam, S., and Rawat, N. Targeting wheat genes associated with susceptibility to *Fusarium graminearum* for enhancing FHB resistance. In: S. Canty, B. Wiermer and D. Van Sanford (Eds.), *Proceedings of the 2017 National Fusarium Head Blight Forum*. East Lansing, MI/Lexington, KY: U.S. Wheat & Barley Scab Initiative.

Shah, J., Walling, L., eds. (2017). *Advances in Plant-Hemipteran Interactions*. Lausanne: Frontiers Media. doi: 10.3389/978-2-88945-321-4.



Shulaev, V., and Chapman, K.D. (2017) Plant lipidomics at the crossroads: From technology to biology driven science. *Biochim Biophys Acta*. 1862(8):786-791. pii: S1388-1981(17)30035-5. doi: 10.1016/j.bbali.2017.02.011. Special Opinions Issue on Lipidomics.

Su, X., Shen, G., Di, S., Dixon, R.A. and Pang, Y. (2017). Multi-substrate UFGT from *Ginkgo biloba*: characteristics, application and evolutionary significance. *Frontiers in Plant Science* 8:2085. doi: 10.3389/fpls.2017.02085.

Yadav, U.P., Khadilkar, A.S., Shaikh, M.A., Turgeon, R. and Ayre, B.G. (2017). Quantifying the Capacity of Phloem Loading in Leaf Disks with [<sup>14</sup>C]Sucrose. *Bio-Protocol* 7(24): e2658. DOI: 10.21769/BioProtoc.2658.

Yadav, U.P., Khadilkar, A.S., Shaikh, M.A., Turgeon, R. and Ayre, B.G. (2017). Assessing Long-distance Transport from Photosynthetic Source Leaves to Heterotrophic Sink Organs with [<sup>14</sup>C]CO<sub>2</sub>. *Bio-Protocol* 7(24): e2657. DOI: 10.21769/BioProtoc.2657.

Yadav, U.P., Khadilkar, A.S., Shaikh, M.A., Turgeon, R. and Ayre, B.G. (2017). Assessing Rates of Long-distance Carbon Transport in *Arabidopsis* by Collecting Phloem Exudations into EDTA Solutions after Photosynthetic Labeling with [<sup>14</sup>C]CO<sub>2</sub>. *Bio-Protocol* 7(24): e2656. DOI: 10.21769/BioProtoc.2656.

Zeni, J.O., Hoeinghaus, D.J., Casatti, L. (2017) Effects of pasture conversion to sugarcane for biofuels production on stream fish assemblages in tropical agroecosystems. *Freshwater Biology* 62: 2026-2038.

## Patents

US Patent #9,849,101. METHOD FOR ENHANCING AMIDOHYDROLASE ACTIVITY OF FATTY ACID AMIDE HYDROLASE. John, George (New York, NY); Nagarajan, Subbiah (New York, NY); Chapman, Kent (Denton, TX); Faure, Lionel (Flower Mound, TX); Koulen, Peter (Leawood, KS). Continuation-in-part (USPTO #9,474,271-above patent). Issued December 26, 2017.

US Patent Application Serial No. 15/632,974 - HIGH OLEIC SEED OIL TRAIT IN COTTON VARIETIES TO ELEVATE THE OLEIC ACID CONTENT OF COTTONSEED OIL. Chapman, Kent Dean (Denton, TX); Horn, Patrick (Holt, MI); Sturtevant, Drew (Southlake, TX); Kennedy, Christopher (Ft. Worth, TX). June 26, 2017. Pending.

USPTO Application Serial No. 15/624,495 - METHODS FOR INCREASING OIL CONTENT IN PLANT TISSUES BY SUPPRESSING HYDROPHOBIC LIPID DROPLET PROTEIN. Chapman, Kent (Denton, TX); Mullen Robert (Guelph, Ontario, Canada); Pyc Michal (Guelph, Ontario, Canada); Dyer, John (Maricopa, AZ). June 15, 2017. Pending

US Provisional Patent Application 62/598,624 - LIQUID AND SEMISOLID LUBRICANT COMPOSITIONS, METHODS OF MAKING, AND USES THEREOF Inventor(s): Diana Berman, Kent Dean Chapman, Trevor Bradley Romsdahl, Edgar Benjamin Cahoon, Robert Earl Minto, December 14, 2017. Pending.

## Extramural Grants and Contracts

Engineering Lipid Droplets for Increasing Oil Content and Abiotic Stress Tolerance of Plants. USDA- ARS Cooperative Agreement (sponsor #58-2020-7-019). PI: Kent Chapman; co-PI: John Dyer (US Department of Agriculture). \$71,033.

## Seminars/Talks

*A New Twist on the Function of Abietane Diterpenoids in Plants.* BioDiscovery Institute seminar presentation by Jyoti Shah, Denton, TX. November 27, 2017.

*Adding Value To The Vitamin E Profile Of Cottonseed Through The Seed-Specific Production of Tocotrienols.* 2018 Beltwide Cotton Conference, San Antonio, TX. Invited talk by Dr. Kent Chapman. Co-authors: Shanmukh Salimath, Umidjon Iskandarov, Wei Zhang, and Edgar B. Cahoon. January 5, 2018.

*Developmental Plasticity, Critical Windows and Epigenetics.* Hong Kong University, Hong Kong, China. Invited talk by Dr. Warren W. Burggren. December 6, 2017.

*Developmental Plasticity, Critical Windows and Epigenetics.* City University of Hong Kong, Hong Kong, China, December 5, 2017. Invited talk by Dr. Warren W. Burggren. December 6, 2017.

*Do we understand vanillin biosynthesis?* Invited conference talk by Richard. A. Dixon, Vanilla 2017, Jamesburg New Jersey, November 2017.

*Epigenetic Inheritance of PAH Resistance in the Zebrafish (Danio rerio).* SACNAS, Salt Lake City, Utah. Contribution talk by Naim Martinez (Ph.D. Student). Co-authors, Warren W. Burggren. October 20, 2017.

*From the lab to the field- a biochemist's approach to engineering forage quality in alfalfa.* Texas Tech University, Department of Chemistry and Biochemistry, Invited Departmental Seminar by Richard A. Dixon, November 1, 2017.

*Functional and genomic analysis of cotton growth habit: Branching architecture is regulated by the Gossypium hirsutum SINGLE FLOWER TRUSS and SELF-PRUNING orthologs.* USDA Agricultural Research Services, Lubbock, TX. Invited talk by Dr. Brian Ayre. Co-authors, Roisin McGarry, Sarah Prewitt (Ph.D. student), Yuval Eshed and Eliezer Lifschitz. October 13, 2018.

*Healing Our Inner Oceans With Probiotics. How knowledge of the origins of our gut microbiome can improve human and animal health under chronic stress.* International Microbiome and Probiotics Congress. San Diego, CA. Lecture by Lone Hunt von Herbing. November 2, 2017

*Imaging Lipids in Plant Seed Tissues by Mass Spectrometry.* Invited Seminar by Dr. Kent Chapman at the Department of Biological Sciences Seminar Series, Texas State University, San Marcos, TX., October 13, 2017.

*Old enzymes catalyze new reactions in the biosynthesis of proanthocyanidins.* Keynote Lecture by Richard A. Dixon, American Chemical Society South West Region Annual Meeting, Lubbock, TX. November 2017.

*Regulation of Lipid Droplet Accumulation in Plant Tissues.* 7th Asian Symposium on Plant Lipids, Academia Sinica, Taipei, Taiwan. Invited Keynote Speaker, KD Chapman. December 1, 2017.

*The Biology of Extreme Environments.* Autonomous University of the State of Mexico, Toluca, Mexico. Invited talk by Dr. Warren W. Burggren. November 6, 2017.

*Impact of Interdisciplinary Inclusion in Science.* National Academies Keck Futures Initiative, Irvine, CA .Keynote talk by Dr. Benjamin Dubansky. November 9, 2017.

*Vanillin from lignin.* Invited conference talk by Richard.A. Dixon, Vanilla 2017, Jamesburg New Jersey, November 2017.

*Whatever you do, don't study raptors! – past, present, and future explorations into the social ecology of birds of prey by a wayward ecologist.* Annual Conference of the Raptor Research Foundation, Salt Lake City, UT. Plenary Lecture, Jim Bednarz. November 9, 2017.

## Conference Presentations

Barbosa, K., Harried, B., Hoinghaus, D.J. Experimental determination of fish host suitability for sandbank pocketbook (*Lampsilis satura*). McNair Scholars Symposium, University of North Texas.

Benzing, K.M., and Bednarz, J.C. Status and density of breeding painted buntings (*Passerina ciris*) at the Lewisville Lake Environmental Learning Area. Texas Chapter of the Society for Ecological Restoration Annual Conference, Denton, TX. November 2017.

Burkhalter, R.S., Bednarz, J.C., and Steigman, K.L. Sparrow use and site fidelity of the restored prairie at the Lewisville Lake Environmental Learning Area in north-central Texas. Texas Chapter of the Society for Ecological Restoration Annual Conference, Denton, TX. November 2017.

Dubansky, B. D., Dubansky, B. H., Matson, C., Verbeck, G., Oziolor, E., Burggren, W. Evolutionary models of human disease. National Academies Keck Futures Initiative, Irvine, CA. November 2017.

Mager, E., Ruhr, I., and Grosell, M. Impacts of Deepwater Horizon crude oil exposure on the intestinal transport physiology of the gulf toadfish (*Opsanus beta*). Society of Environmental Toxicology and Chemistry North America Annual Meeting, Minneapolis, MN. November 2017.

McCown, C., Webb, M., Bhuiyan, S., and Hughes, L.E. Post-Isolation Differentiation of Mixed Streptomyces Phages Thestral and Haizum. Texas Phage Meeting, College Station, TX. October 2017.

Sanchez, J., Rojas, M., and Burggren, W. Venous Malformations and the Regulation of Angiogenesis by Folic Acid. SACNAS, Salt Lake City, Utah, October 2017.

Riley, B., Bednarz, J.C., and Steigman, K.L. Changes in mean passage dates of two migratory bird species related to climate change in north Texas. Texas Chapter of the Society for Ecological Restoration Annual Conference, Denton, TX. November 2017.

Schlenker, L., Welch, M., Mager, E., Stieglitz, J., Benetti, D., Munday, P., and Grosell, M. Behavioral and physiological responses of Mahi-Mahi (*Coryphaena hippurus*) and bicolor damselfish (*Stegastes partitus*) to olfactory cues following crude-oil exposure. Society of Environmental Toxicology and Chemistry North America Annual Meeting, Minneapolis, MN. November 2017

Shah J., Alam, S., and Rawat, N. Targeting wheat genes associated with susceptibility to Fusarium graminearum for enhancing FHB resistance. Proceedings of the 2017 National Fusarium Head Blight Forum, Milwaukee, WI. December 2017,

Sivoravong, A., Bhuiyan, S., and Hughes, L.E. Gene Deletion in Bacteriophage EagleEye Using Electroporated DNA and Exploration of this Application to Streptomyces spp. Texas Phage Meeting, College Station, TX. October 2017.

Subedi, A. and Fuchs, J. Roles of Primary Cilia in the Oligodendrocyte Lineage. American Society for Cell Biology/EMBO meeting, Philadelphia, November 2017.

Vaguine, D., Brown, K.R., and Bednarz, J.C. Sexual segregation by habitat in American Kestrels (*Falco sparverius*) wintering in North Texas. Raptor Research Foundation conference, Salt Lake City, UT. November 2017.

Xu, E., Diamante, G., Chan, S., Mager, E., Grosell, M., and Schlenk, D. Regulation of microRNAs in mahi-mahi (*Coryphaena hippurus*) exposed to Deepwater Horizon Oil. Society of Environmental Toxicology and Chemistry North America Annual Meeting, Minneapolis, MN. November 2017.

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