



## Recognitions and Awards

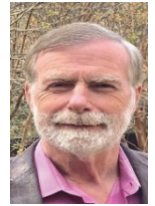
University Distinguished Research Professor **Dr. Richard A. Dixon** was named a Clarivate Analytics 2020 Highly Cited Researcher.

University Distinguished Research Professor **Dr. Warren Burggren** was appointed Chief Editor of the Embryonic and Developmental Physiology Section of *Frontiers in Physiology*, a journal published out of Lausanne, Switzerland.

Graduate student **Saifun Nahar's** presentation '*On the way to manage diabetes*' won the People's Choice Award at the UNT 3 MT Doctoral Competition, November 2020. Dr. Pamela Padilla is Saifun's PhD advisor. Saifun also won an award for this presentation at the National Association of Graduate Professional student (NAGPS) Conference- 3 MT Competition, November 2020.



Dr. Richard Dixon



Dr. Warren Burggren

## Appointments/Promotions

**Dr. Ed Dzialowski**, Professor in the Department of Biological Sciences, was appointed Associate Dean of Research and Graduate Studies in the College of Science. Dr. Dzialowski has served as the head of the Division of Physiology and Neurobiology in the Department of Biological Sciences, and has been a long-time member and the current chair of the UNT Institutional Animal Care and Use Committee (IACUC). He currently serves as the faculty chair of the College of Science Faculty Council.



Saifun Nahar



Dr. Ed Dzialowski

## Thesis and Dissertations

**Anna Adivi** successfully defended her PhD Dissertation "*Traffic-Generated Air Pollution– Exposure Mediated Expression of Factors Associated with Progression of Multiple Sclerosis in a Female Apolipoprotein E Knockout Mouse Model.*" Anna's major advisor is Dr. Amie Lund.

**Anna Wrona** successfully defended her PhD dissertation titled "*A genetic assessment of the mating system of a suburban Red-shouldered hawk population in SW Ohio*" on November 23, 2020. Anna's major Professor is Dr. Jeff Johnson.

**Mearaj Shaikh** successfully defended his PhD dissertation titled "*Identification and Characterization of a Mutation Causing Stunted Growth in Arabidopsis That is Linked to Phosphate Perception*" on October 23, 2020. His major Professor is Dr. Bryan Ayre. Mearaj has joined the Department of Horticulture and Plant Architecture at Purdue University as a post-doc investigating the sea slug kleptoplasty and production of high value naphthoquinones in cover crops.

**Prajita Pandey** Successfully defended her PhD dissertation titled "*Multi- omics-based investigation of distinct early oxidative stress responses of Saccharomyces cerevisiae to various oxidants*" on November 24, 2020. Prajita's major professor is Dr. Validimir Shulaev.



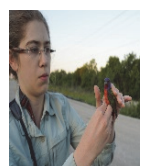
Mearaj Shaikh



Prajita Pandey



Subhayu Nayek



Christine Gurley

**Subhayu Nayek** successfully defended his PhD dissertation titled "*Toxicological and Biochemical changes induced by sub-acute exposure of biological organisms to Silver Nanoparticles using Soft-Landing Ion Mobility Instrument*" on October 20, 2020. Subhayu's major professor is Dr. Amie K. Lund and co-major professor is Dr. Guido F. Verbeck. Subhayu has accepted a position as a Biochemist-II by LaCore Labs at UNT inspire Park, Frisco, TX.

**Sujata Agarwal** successfully defended her PhD in Biochemistry and Molecular Biology titled "*Analysis of the cytochrome P450 and UDP-glucuronosyltransferase families and vitamin D3-supplementation in anoxia survival in Caenorhabditis elegans*" on October 27, 2020. Sujata's major professor is Dr. Pamela Padilla.

**Christine Gurley** defended her Master's Thesis titled "*A test of the female mimicry hypothesis in Painted Buntings (Passerina ciris)*". Her defense date was November 19, 2020. Christine's major professor is Dr. Jeff Johnson. Christine is a volunteer with a sparrow site fidelity study at LLELA, Lewisville, TX.

## Undergraduate Student News

**Brand Richter** (UNT Ecology BS major) was awarded the Keep Denton Beautiful Vicki McCombs Forestry Award! From the Keep Denton Beautiful website (<https://kdb.org/2020/11/30/2020-kdb-volunteer-partner-awards/>): “The Urban Forestry Award is named for Vicki McCombs, a longtime KDB volunteer who was instrumental in beginning the Community Tree Giveaway program 20 years ago. She was a staunch advocate for all of KDB’s urban forestry program efforts. Brand, like Vicki, is an advocate for Denton’s urban canopy. This past year, Brand, along with Jaime Baxter-Slye and Clay Thurmond, launched the Denton Trees iNaturalist project “to inform on tree species diversity, distribution and candidates for local designations of tree conservation status.” Brand educates residents and engages interested residents through thought provoking articles on Denton Trees, a local Facebook group with nearly 1,000 members. We’d like to think Brand’s interest in urban forestry was nurtured as a KDB volunteer.”

### Vicki McCombs Urban Forestry Award Brand Richter



Brand Richter

## Extramural Grants and Contracts

Facilitation of *Fusarium graminearum* invasiveness by plant 9-lipoxygenase. US Department of Agriculture- National Institute of Food and Agriculture (Award # 2021-67013-33573). PI: Jyoti Shah, \$493,867.

Molecular genetic identity of Baggs WY sharp-tailed grouse. Bureau of Land Management sub-award from University of Wyoming, PI: Dr. Jeff Beck, University of Wyoming; Co-PI Andrew J. Gregory, \$2,400.

Towards the development of high-yielding cultivars & germplasm with optimum oil and protein content and innovative oil attributes for the current market. United Soybean Board. \$544,025. PI: Leah McHale (Ohio State Univ.); Co-PIs: Ana Paula Alonso (Univ. North Texas; \$151,692), Pengyin Chen (Univ. Missouri), Tom Clemente (Univ. Nebraska), Rauf Mian (USDA-ARS), Leandro Mozzoni (Univ. Arkansas).

Transforming row crops to express condensed tannins. Grasslanz Technology Ltd, New Zealand. (Richard A. Dixon, PI). \$465,000.

## Publications

Adivi, A., Lucero, J., Simpson, N., McDonald, J.D., Lund, A.K. (2020) Exposure to traffic-generated air pollution promotes alterations in the integrity of the brain microvasculature and inflammation in female ApoE <sup>-/-</sup> mice. *Toxicol Lett.* 2020 Dec 26;339:39-50. doi: 10.1016/j.toxlet.2020.12.016.

Amack, S.C., and Antunes, M.S. (2020) CaMV35S promoter – a plant biology and biotechnology workhorse in the era of synthetic biology. *Current Plant Biology* 24: 100179. <https://www.sciencedirect.com/science/article/pii/S2214662820300608>.

Armstrong, T.D., Suwannasual, U., Kennedy, C.L., Thasma, A., Schneider, L.J., Phillippi, D., Lund, A.K. (2020) Exposure to traffic-generated pollutants exacerbates the expression of factors associated with the pathophysiology of Alzheimer's disease in aged C57BL/6 wild-type mice. *J Alzheimers Dis.* 78(4):1453-1471. doi: 10.3233/JAD-200929.

Bonatesta, F., Leads, R., Price, E., Roberts, A., and Mager, E. (2020) Effects of dissolved organic carbon, ultraviolet light and their co-exposure on Deepwater Horizon crude oil acute toxicity to larval red drum (*Sciaenops ocellatus*). *Environmental Toxicology and Chemistry.* 39(12):2509-2515. <https://setac.onlinelibrary.wiley.com/doi/10.1002/etc.4877>.

Cannon, A.E., Yan, C., Burks, D.J., Rao, X., Azad, R.K, Chapman, K.D. (2020) Lipophilic signals lead to organ-specific gene expression changes in Arabidopsis seedlings. *Plant Direct.* 4 (7), e00242. <https://doi.org/10.1002/pld3.242>

Docampo-Palacios M.L., Álvarez-Hernández A., de Fátima A, Liao, L.M., Pasinetti G.M. and Dixon, R.A. (2020). Efficient chemical synthesis of (epi)catechin glucuronides, brain-targeted metabolites for treatment of Alzheimer's disease and other neurological disorders. *ACS Omega* 5: 30095-30110. <http://dx.doi.org/10.1021/10.1021/acsomega.0c04512>.

Docampo-Palacios, M., Alvarez, A., Adiji, O., de Fatima, A., de Oliveira, A., De Abreu, H., Pasinetti, G. and Dixon, R.A. (2020). Glucuronidation of methylated quercetin derivatives: chemical and biochemical approaches. *Journal of Agricultural and Food Chemistry.* 68: 14790-14807. <https://dx.doi.org/10.1021/acs.jafc.0c04500>.

Dokwal, D., Romsdahl, T.B., Kunz, D.A., Alonso, A.P., Dickstein, R. (2020) Phosphorus deprivation affects composition and spatial distribution of membrane lipids in legume nodules. *Plant Physiology.* DOI: [10.1093/plphys/kiaa115](https://doi.org/10.1093/plphys/kiaa115).

Greer, M.S., Cai, Y., Gidda, S.K., Esnay, N., Kretschmar, F.K., Seay, D., McClinchie, E., Ischebeck, T., Mullen, R.T., Dyer, J.M., Chapman, K.D. (2020) SEIPIN Isoforms Interact with the Membrane-tethering Protein VAP27-1 for Lipid Droplet Formation. *The Plant Cell,* 32 (9), 2932-2950, <http://www.plantcell.org/content/32/9/2932.full>

Gregory, A.J., and Spence, E.S. (2020). Using inquiry-based methods to teach spatial statistics: decoupling pattern from process using bigfoot sightings. *Case Studies in the Environment.* doi.org/10.1525/cse.2020.1223915.

Kilaru, A. and Chapman, K.D. (2020). The endocannabinoid system. *Essays in Biochemistry*, 64 (3): 485- 499. <https://doi.org/10.1042/EBC20190086>.

Liu, P.L., Zhang, X., Mao, J.F., Hong, Y.M., Zhang, R.G., E Y, Nie, S., Jia, K., Jiang, C.K., He, J., Shen, W., He, Q., Zheng, W., Abbas, S., Jewaria, P.K., Tian, X., Liu, C.J., Jiang, X., Yin, Y., Liu, B., Wang, L., Jin, B., Ma, Y., Qiu, Z., Baluška, F., Šamaj, J., He, X., Niu, S., Xie, J., Xie, L., Xu, H., Kong, H., Ge, S., Dixon, R.A., Jiao, Y, and Lin, J. (2020). The *Tetracentron sinense* genome provides insight into the evolution of eudicots and the formation of vessel-like elements. *Genome Biology* 21: 291. <https://doi.org/10.1186/s13059-020-02198-7>.

Nayek, S., De Silva, I.W., Aguilar, R., Lund, A.K., Verbeck, G.F. (2020) Toxicological alterations induced by subacute exposure of silver nanoparticles in Wistar rats. *Journal of Applied Toxicology*. doi: 10.1002/jat.4086.

Price, E. and Mager, E. (2020) Respiratory Quotient: Effects of Fatty Acid Composition. *Journal of Experimental Zoology Part A*. 333, 613–618. <https://onlinelibrary.wiley.com/doi/abs/10.1002/jez.2422>.

Prajita Pandey, Khadiza Zaman, Laszlo Prokai and Vladimir Shulaev: Comparative Proteomics Analysis Reveals Unique Early Signaling Response of *Saccharomyces cerevisiae* to Oxidants with Different Mechanism of Action. *International Journal of Molecular Sciences*. <https://doi.org/10.3390/ijms22010167>.

Rolletschek, H., Schwender, J., König, C., Chapman, K.D., Romsdahl, T., Lorenz, C., Braun, H.P., Denolf, P., Van Audenhove, K., Munz, E., Heinzl, N., Ortleb, S., Rutten, T., McCorkle, S., Borysyuk, T., Guendel, A., Shi, H., Auwermeulen, M.V., Bourot, S., Borisjuk, L. (2020) Cellular Plasticity in Response to Suppression of Storage Proteins in the *Brassica napus* Embryo. *The Plant Cell*, 32: 2383–2401. <http://www.plantcell.org/content/plantcell/32/7/2383.full.pdf>

Sirsat, T.S. and Dzialowski, E.M. (2020) Manipulating plasma thyroid hormone levels at hatching alters development of endothermy and ventilation in Pekin duck (*Anas platyrhynchos domestica*). *Journal of Experimental Biology*. 223: jeb237701. <https://jeb.biologists.org/content/223/22/jeb237701>.

Wang, X., Zhuo, C., Xiao, X., Wang, X., Docampo-Palacios, M.L., Chen, F. and Dixon, R.A. (2020). Substrate-specificity of LACCASE 8 facilitates polymerization of caffeoyl alcohol for C-lignin biosynthesis in the seed coat of *Cleome hassleriana*. *Plant Cell*: DOI: <https://doi.org/10.1105/tpc.20.00598> (with In Brief commentary article).

Yan, C., Cannon, A.E., Watkins, J., Keereetaweep, J., Khan, B.R., Jones, A.M., Blancaflor, E.B., Azad, R., Chapman, K.D. (2020) Seedling chloroplast responses induced by N-linolenylethanolamine require intact G-protein complexes. *Plant Physiology*, 184 (1), 459-477 <http://www.plantphysiol.org/content/184/1/459.full>

## Seminars/Talks

*A Multi-Omics Approach to Design Next-Generation Alternative Crops*. Plant Biotechnology for Health Symposium 2020, Michigan State University, East Lansing, USA, October 22-23, 2020. Invited virtual seminar by Dr. Ana P. Alonso.

*Acute Effects of Co-Exposure to Hypoxia and Lead on the Cladoceran, Daphnia magna*. Society of Environmental Toxicology and Chemistry North America Annual Meeting, SciCon2, 2020. Emadi, C., Bonatesta, F., Nayek, S., Verbeck, G., and Mager, E. (virtual talk).

*Carbon dioxide metabolism in methanotrophic bacteria*. American Society for Microbiology Texas Branch Fall Meeting. November 6, 2020. Invited talk by Calvin Henard.

*Deepwater Horizon Crude Oil Exposure Effects on the Developing Kidney and Fluid Balance in Early Life-Stage Teleost Fish*. Society of Environmental Toxicology and Chemistry North America Annual Meeting, SciCon2, 2020. Bonatesta, F., Emadi, C., Price, E. and Mager, E. (virtual talk).

*Enhancing wheat resistance to Fusarium graminearum via host-induced gene silencing (HIGS) of the fungal virulence gene FGL1*. 2020 National Fusarium Head Blight Forum (Virtual), December 7-11, 2020. Invited talk by Dr. Vijee Mohan. Co-authors: Syeda Alam, Elena Shulaev, Hyenoju Lee, Harold N. Trick, and Jyoti Shah.

*Genetically Modified Cotton Plants Produce Tocotrienols: Important Vitamin E components for Added Nutritional and Medicinal Value*. International Webinar organized by the Department of Botany, Raja Lakhamagouda Science Institute, Belagavi, India. July 1, 2020. Invited talk by Dr. Shanmukh Salimath. Co-authors, Trevor Romsdahl, Anji Konda, Wei Zhang, Edgar Cahoon, Michael Dowd, Thomas Wedegaertner, Kater Hake, Kent Chapman.

*Impact of Abiotic Stresses in Plants: What Can Metabolomics Tell Us?* Planta con Ciencia, Universidad de Chile, Santiago, Chile, November 4, 2020. Invited virtual seminar by Dr. Ana P. Alonso.

*Inhaled Diesel Exhaust Particulate Matter Causes Intestinal Epithelial Barrier Disruption Which Can Be Undergraduate Presentation* by Kayla Nguyen (B.S. Student). Co-authors, Danielle Phillippi (Ph.D. Student), Sarah Daniel (Ph.D. Student), and Amie Lund (Mentor).

*Plasma from C57Bl/6 mice Exposed to Vehicle Emissions Mediates Lipid Accumulation and Renin Angiotensin Signaling in 3T3-L1 Mouse Adipocytes*. Lone Star Society of Toxicology Fall Meeting (Virtual), November 20, 2020. Invited Trainee Presentation by Nicholas Mitchell (M.S. Student). Co-Author, Usa Suwannasual (Ph.D. Student), J. Lucero, J.D. McDonald, and Amie Lund (Mentor).

*Selected organism-level similarities and differences in lipid signaling and lipid storage*. Terry Galliard Lecture, 25<sup>th</sup> International Symposium on Plant Lipids. July 7, 2020. Invited talk by Kent Chapman. Live streamed. <https://www.youtube.com/watch?v=gRcoHBfvj3Y&feature=youtu.be>

## Conference Presentations

Armstrong T, Suwannasual U, McDonald JD, Lund AK. (2020). Exposure to traffic-generated pollutants exacerbates the expression of factors associated with the pathophysiology of Alzheimer's disease in aged C57BL/6 wild-type mice. Lone Star Society of Toxicology Fall Meeting, November 20, 2020. Virtual poster presentation.

Mager, E., Bonatesta, F., Leads, R., Price, E. and Roberts, A. (2020) Effects of Dissolved Organic Carbon, Ultraviolet Light and their Co-exposure on Deepwater Horizon Crude Oil Acute Toxicity to Larval Red Drum (*Sciaenops ocellatus*). Society of Environmental Toxicology and Chemistry North America Annual Meeting, SciCon2 (virtual poster).

Mohan, V., Alam, S., Shulaev, E., Lee, H., Trick, H.N., and Shah, J. (2020) Enhancing wheat resistance to *Fusarium graminearum* via host-induced gene silencing (HIGS) of the fungal virulence gene *FGL1*. 2020 National Fusarium Head Blight Forum (Virtual), December 7-11, 2020 Virtual poster presentation.

Mittal, I., Alam, S., Chhabra, B., Shulaev, E., Mohan, V., Rawat, N., and Shah, J. (2020) Targeting wheat genes associated with susceptibility to *Fusarium graminearum* for enhancing FHB resistance. 2020 National Fusarium Head Blight Forum (Virtual), December 7-11, 2020. Virtual poster presentation.

Nahar, S., and Padilla, P. (2020). Glucose acts through the insulin signaling pathway to induce a developmental delay phenotype in *C. elegans*. SACNAS virtual conference, October 2020. Virtual poster presentation.

Phillippi D, Daniel S, Nguyen K, and Lund AK. (2020). Probiotics mitigate systemic response and altered lung microbiota in mice exposed to inhaled diesel exhaust particles in male C57Bl/6 wildtype mice. Lone Star Society of Toxicology Fall Meeting, November 20, 2020. Virtual poster presentation.

Schneider L, McDonald JD, and Lund AK. (2020). Top-down Proteomics Reveals Alteration in Liver Protein Profile of C57Bl/6 Mice Exposed to Mixed Vehicular Emissions and a High Fat Diet. Lone Star Society of Toxicology Fall Meeting, November 20, 2020. Virtual poster presentation.

## Meetings Hosted

Drs. Rajeev Azad and Lee Hughes hosted the 2020 Fall Meeting of the Texas Branch-American Society for Microbiology as a virtual conference. Dr. Calvin Henard served as a session organizer, and several members of the Azad and Hughes labs assisted with meeting preparation and session moderation (Swapan Bhuiyan, Ronika De, Sonya Layton, Jindanuch Maneekul, Soham Sengupta).

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