



## Awards and Recognitions



Monika Patel

**Monika Patel**, graduate student in the Biochemistry and Molecular Biology Program was awarded the competitive 2016 Nicholas and Anna Ricco Ethics Award for the College of Arts and Science. The goal of this competition is to provoke intellectual debate and discussion on ethics. This competition, which carries a \$1,000 award, is given to a student who has excelled in academics and requires the submission of an essay that highlights what the applicant believes to be the epitome of ethical behavior in his or her focus of study. University Distinguished Research Professor Jyoti Shah is Monika Patel's PhD advisor.

**Feroza K. Choudhury**, graduate student in the Biochemistry and Molecular Biology Program won a student travel stipend from the American Society for Mass Spectrometry (ASMS) to attend the 64th ASMS Conference on Mass Spectrometry and Allied Topics in San Antonio, TX. Dr. Vladimir Shulaev, Professor in Biology, is Feroza Choudhury's PhD advisor.



Feroza Choudhury

## Other News

Through their recent article in the journal *Science*, **Dr. David Hoeinghaus**, Assistant Professor in Biology and collaborators brought global attention to the adverse impacts such as species extinctions and loss of ecosystem services that will accompany the current boom in hydroelectric development in tropical countries. The Amazon, Congo and Mekong rivers that are the target of this study hold nearly 30% of the world's freshwater fish species, many of which are endemics. The authors advocate holistic basin-scale planning that balances hydropower development and biodiversity. This work received extensive media and public attention (<https://www.altmetric.com/details/4966858/news>) and was ranked in the top 5% of all research outputs scored by Altmetric <https://www.altmetric.com/details/4966858#score>



Dr. David Hoeinghaus



The Belo Monte hydropower complex.  
Photo credit: Dr. Kirk Winemiller, Texas  
A&M University

The National Public Radio (NPR) highlighted UNT's Natural Heritage Museum and the Mosquito research in Regents Professor **Dr. James Kennedy's** Laboratory with a story titled, *Who knew there are more than 50 types of mosquitoes in north Texas*, the program was broadcast locally by KERA, Statewide via Texas Standard (22 statewide NPR stations) and nationally via NPR's *Here and Now* Public Radio's live midday news program produced by WBUR Boston's NPR News Station.

<http://breakthroughs.kera.org/who-knew-there-are-more-than-fifty-types-of-mosquitoes-in-north-texas/>  
<http://www.texasstandard.org/stories/who-knew-there-are-more-than-50-types-of-mosquitoes-in-north-texas/>  
<http://hereandnow.wbur.org/2016/02/17/mosquitoes-zika-north-texas>



Dr. James Kennedy

CBS DFW 11 NEWS also broadcasted a news story, *Researchers Hope to Control Disease-Spreading Mosquitoes*. The story highlighted the museum and students (Bethany Hambrick, M.S. graduate student and Katie Vasquez, undergraduate Ecology major) working in the laboratory.  
<http://dfw.cbslocal.com/2016/03/14/researchers-hope-to-control-disease-spreading-mosquitoes/>



Dr. Benjamin Dubansky

**Dr. Benjamin Dubansky's** work was recently featured in a publication for NOAA's SeaGrant and the Gulf of Mexico Research Initiative's effort to educate the public about the effects of the Deepwater Horizon Oil Spill. This publication entitled '*Impacts from the Deepwater Horizon oil spill on Gulf of Mexico Fisheries*' can be found at <http://masgc.org/oilscience/oil-spill-science-fish-impacts.pdf>

**Dr. Pamela Padilla**, Associate Professor in Biology was elected to the Board of Directors for the Society for Advancement of Chicanos/Hispanics and Native Americans in Science. The SACNAS society is dedicated to fostering the success of Chicano/Hispanic and Native American scientists – from college students to professionals – to attain advanced degrees, careers and positions of leadership in the science, technology, engineering and math fields. Founded more than 40 years ago, the society serves nearly 20,000 members with more than 100 chapters at colleges and universities throughout the U.S. and Puerto Rico. <https://news.unt.edu/news-releases/unt-researcher-elected-national-board-directors>



Dr. Pamela Padilla

Congratulations to **Amith Reddy**, graduate student in Dr. Ron Mittler's group for being selected as an Ambassador of the American Society of Plant Biologists (ASPB). Amith will represent ASPB at the Southern Section ASPB meeting, which will be held on the UNT campus in April 2016, as well as ASPB's Annual Plant Biology 2016 conference, which will be held in Austin, TX, in July 2016. ASPB Ambassadors are involved in promoting plant sciences and strengthening the plant science community in multiple ways, including helping others navigate their careers, in educating the community about how they can stay involved in plant science, in organizing plant biology 'meetups' on-campus, and having a voice on ASPB's governing bodies.



Amith Reddy

**Dr. Vladimir Shulaev**, Professor in Department of Biological Sciences hosted the COI Symposium on Human Health and Disease organized by the Department of Biological Sciences, UNT, and sponsored by Waters Corporation as part of the Centers for Innovation Program. The symposium was focused on how mass spectrometry is contributing to improving human health and fighting disease and on current and novel practical uses of mass spectrometry, metabolomics technology, high-throughput profiling and highlighted the potential in the area of health and disease.



## Thesis and Dissertations

**Jessica Beckham** successfully defended her doctoral dissertation that addresses the important question of pollinator species declines, "*The influence of urban green spaces on declining bumble bees (Hymenoptera: Apidae)*". Dr. Sam Atkinson, Regents Professor in Biological Sciences was her advisor. She is currently awaiting a decision about a grant submission concerning monarch butterfly declines where she will be a post-doc in Atkinson's lab if the grant is funded.



Jessica Beckham



Dr. Abhishek Kala

**Abhishek Kala** successfully completed his PhD degree with a dissertation that looked at the effect of environmental variables on the spread of West Nile Virus, "*Spatially explicit modeling of West Nile virus risk using environmental data*". Dr. Sam Atkinson, Regents Professor in Biological Sciences was his advisor. He currently hold the position of GIS Analyst at Tessellations Inc. in Houston.

**Sarah Schulwitz** successfully defended her doctoral dissertation degree in March 2016. Dissertation title: *Informing Conservation Management Using Genetic Approaches: Greater Sage-grouse and Galápagos Short-eared Owls as Case Studies*. Dr. Jeff A. Johnson, Associate Professor in Biology was her major advisor. Dr. Schulwitz has accepted a position as Assistant Director of the American Kestrel Partnership at The Peregrine Fund located in Boise, Idaho.



Sarah Schulwitz



Amanda Gobeli

**Amanda Gobeli** successfully defended her MS thesis in February 2016. Thesis title: *The Effects of Neonicotinoid Exposure on Embryonic Development and Organ Mass in Northern Bobwhite Quail*. Dr. Kelly Reyna, Assistant Professor in Biology, was her major advisor.

## Outreach Activities

Biology Professor **Dr. Warren Burggren's** lab has been facilitating Cub Scout troops in receiving their science badges for the past couple of years and recently saw some troops through the process. Cub Scouts must complete a number of requirements, which include learning the scientific method and using it in a simple science project, prior to visiting a facility that employs scientist to learn about the work. After completing the requirements, they are eligible to receive a badge that they affix to their belt. Cub Scouts actively work to obtain such awards for doing work in the community or demonstrated learning objectives.



Cub Scout troops on a recent visit to UNT

## Alumni News

UNT alumnus **Dr. Vamsi Nalam** joined the Department of Biology at Indiana University-Purdue University Fort Wayne (IPFW) as a tenure-track Assistant Professor. Dr. Nalam received his PhD in Biology from UNT in 2012. University Distinguished Research Professor Dr. Jyoti Shah was his PhD advisor. Prior to accepting this tenure-track position, Dr. Nalam was a visiting faculty at IPFW.



Dr. Vamsi Nalam

## Visiting Scientists

Joining Distinguished Research Professor Dr. Richard Dixon's lab this semester as a visiting scientist is **Manuel Carrasco** from Peru. He is here on a Peruvian Government Scholarship and hopes to return in the fall to pursue doctoral studies.



Manuel Carrasco

## Recent Publications

Branum, S.R., Tazawa, H., and Burggren, W.W. (2016) Phenotypic developmental plasticity induced by preincubation egg storage in chicken embryos (*Gallus gallus domesticus*). *Physiological Reports*. 4(4), 2016, e12712, doi: 10.14814/phy2.12712. **This article was selected as part of the Editor's Choice feature February.**

Crego, R.D., Jiménez, J.E., and Rozzi, R. (2016) A synergistic trio of invasive mammals? Facilitative interactions among beavers, muskrats, and mink at the southern end of the Americas. *Biological Invasions*. DOI 10.1007/s10530-016-1135-0

Driver, L.J., and Hoeninghaus, D.J. (2016) Fish metacommunity responses to experimental drought are determined by habitat heterogeneity and connectivity. *Freshwater Biology* 61: 533-548.

Layton, S.R., Hemenway, R.M., Munyoki, C.M., Barnes, E.B., Barnett, S.E., Bond, A.M., Narvaez, J.M., Sirisakd, C.D., Smith, B.R., Swain, R., Syed, O., Bowman, C.A., Russell, D.A., Bhuiyan, S., Donegan-Quick, R., Benjamin, R.C., and Hughes, L.E. (2016) Genome Sequences of *Streptomyces* Phages Amela and Verse. *Genome Announcements* 4(1), e01589-15. doi:10.1128/genomeA.01589-15.

Minias, P., Bateson, Z.W., Whittingham, L.A., Johnson, J.A., Oyler-McCance, S., and Dunn, P.O. (2016) Contrasting evolutionary histories of MHC class I and class II loci in grouse – effects of selection and gene conversion. *Heredity*. doi: 10.1038/hdy.2016.6 [Epub ahead of print]

Mumaw, C.L., Levesque, S., McGraw, C., Robertson, S., Lucas, S., Stafflinger, J.E., Campen, M.J., Hall, P., Norenberg, J.P., Anderson T, Lund, A.K., McDonald, J.D., Ottens, A.K., and Block, M.L. (2016) Microglial priming through the lung-brain axis: the role of air pollution induced circulating factors. *FASEB J*. Feb 10. Pii: fj,201.00047 (Epub). <http://www.fasebj.org/content/early/2016/02/16/fj.201500047.long>

Nesterov, V.V., Zakharov, L.N., Nesterov, V.N., and Shulaev, V. (2015) Crystal structure of (3E,5E)-3,5-bis-[4-(di-ethyl-aza-nium-yl)benzyl-idene]-1-methyl-4-oxopiperidin-1-ium trichloride dihydrate: a potential biophotonic material. *Acta Crystallogr E Crystallogr Commun*. 2015 Nov 21;71(Pt 12):1513-5 <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4719826/>

Oziolor, E.M., Dubansky, B., Burggren, W., and Matson, C.W. (2016) Cross-resistance in Gulf killifish (*Fundulus grandis*) populations resistant to dioxin-like compounds. *Aquatic Toxicology*. DOI: 10.1016/j.aquatox.2016.03.019.

Oyler-McCance, S.J., DeYoung, R.W., Fike, J.A., Hagan, C.A., Johnson, J.A., Larsson, L.C., and Patten, M.A. (2016) Rangwide genetic analysis of Lesser Prairie-chicken reveals population structure, range expansion, and possible introgression. *Conservation Genetics*. doi: 10.1007/s10592-016-0812-y [Epub ahead of print]

Price, E.R., Rott, K.H., Caviedes-Vidal, E., and Karasov, W.H. (2016) Claudin gene expression patterns do not associate with interspecific differences in paracellular nutrient absorption. *Comp. Biochem. Physiol. B* 191: 36-45.

Rao, X., Lu, N., Li, G., Nakashima, J., Tang, Y. and Dixon, R.A. (2016) Comparative cell-specific transcriptomics reveals differentiation of C<sub>4</sub> photosynthesis pathways in switchgrass and other C<sub>4</sub> lineages. *Journal of Experimental Botany*. 67 (6): 1649-1662. doi:10.1093/jxb/erv553.

Rodriguez-Peña, N., Price, E.R., Caviedes-Vidal, E., Flores-Ortiz, C.M., and Karasov, W.H. (2016) Intestinal paracellular absorption is necessary to support the sugar oxidation cascade in nectarivorous bats. *Journal of Experimental Biol*. 219: 779-782.

Santiago, R., Barros-Rios, J., Alvarez, A. and Malvar, R.A. (2016) Agronomic performance of maize pogy populations divergently selected for diferulate cross-linkage. *Journal of Agricultural Science*, available on CJO2016. doi:10.1017/S0021859615001161.

Shell, L., Burggren, W.W., Muirhead, D., Nelson, T.C., and Dzialowski, E.M. (2016) Circulatory changes associated with the closure of the ductus arteriosus in hatching emu (*Dromaius novaehollandiae*). *Comp. Biochem. Physiol. A*. 191: 202-208.

Tripathi, P., Rabara, R.C., Reese, R.N., Miller, M.A., Rohila, J.S., Subramanian, S., Shen, Q.J., Morandi, D., Bücking, H., Shulaev, V., and Rushton, P.J. (2016) A toolbox of genes, proteins, metabolites and promoters for improving drought tolerance in soybean includes the metabolite coumestrol and stomatal development genes. *BMC Genomics*. 17:102.

Winemiller, K.O., McIntyre, P.B., Castello, L., Fluet-Chouinard, E., Giarrizzo, T., Nam, S., Baird, I.G., Darwall, W., Lujan, N.K., Harrison, I., Stiassny, M.L.J., Silvano, R.A.M., Fitzgerald, D.B., Pelicice, F.M., Agostinho, A.A., Gomes, L.C., Albert, J.S., Petrere Jr., M., Zarfl, C., Mulligan, M., Sullivan, J.P., Arantes, C., Sousa, L.M., Koning, A.A., Hoeninghaus, D.J., Sabaj, M., Lundberg, J.G., Armbruster, J., Petry, P., Zuanon, J., Torrente Vilara, G., Snoeks, J., Ou, C., Pavanelli, C.S., Akama, A., van Soesbergen, A., and Sáenz, L. (2016) Balancing hydropower and biodiversity in the Amazon, Congo and Mekong – basin-scale planning is needed to minimize impacts in mega-diverse rivers. *Science* 351: 128-129.

## Extramural Grants and Contracts

*Metabolomic Investigation of Cotton Fiber Quality Biomarkers*. Cotton Incorporated. PI – V. Shulaev, \$72,149.

## Seminars/Talks

*Exploring the diversity of bacteriophages which infect the genus Streptomyces*. Texas Branch – American Society for Microbiology Spring Meeting, New Braunfels, TX, March 31, 2016. Invited talk by Dr. Lee Hughes.

*Application of novel analytical techniques and data analysis tools for comprehensive metabolomics analysis of complex biological mixtures*. COI Symposium on Human Health and Disease, Denton, TX, March 22<sup>nd</sup> 2016, Invited talk by Vladimir Shulaev.

*Epigenetic transgenerational inheritance and its implications for organismal resilience to oil spills*. Gulf of Mexico Oil Spill and Ecosystem Science Conference. Tampa, FL. February 4, 2016. Invited talk by Dr. Warren W. Burggren

*New pathways to old compounds; do we really understand lignin and flavonoid biosynthesis?* American Society of Plant Biologists Mid-Atlantic Sectional Meeting, University of Maryland, Baltimore, MD, March 4, 2016. Invited talk by Dr. Richard Dixon.

## Conference Presentations

Driver, L.J., and Hoeinghaus, D.J. *Fish metacommunity responses to experimental drought are determined by habitat heterogeneity and connectivity*. Annual Meeting of the Texas Chapter American Fisheries Society, Kerrville, TX. Jan 2016.

Dubansky, B., Rojas Antich, M., Tazawa, H., Mach, P., Verbeck, P., Burggren, W.W. *Oil Vapors from the Deepwater Horizon and altered development of avian embryos*. Gulf of Mexico Oil Spill and Ecosystem Science Conference. Tampa, FL. Feb 2016.

Fitch, M.N., Lucero, J., Campen, M.J., McDonald, J.D., and Lund, A.K. *Exposure to inhaled traffic-generated air pollutants results in altered barrier structure and integrity in the duodenal epithelium of Mice*. Society of Toxicology Conference, New Orleans, LA., March 2016.

Lund, A.K., Schneider, L., Lucero, J., McDonald J.D. *Inhalation Exposure to traffic-generated air pollutants increased renal oxidative stress, matrix metalloproteinase-9 expression and fibrosis, which are mediated through an Angiotensin-II-dependent pathway*. Society of Toxicology Conference, New Orleans, LA., March 2016.

McCauley, M., and Hoeinghaus, D.J. *Gut microbial symbioses in freshwater fishes*. Annual Meeting of the Texas Chapter American Fisheries Society, Kerrville, TX. Jan 2016.

Miles, N., Lau, K., Weil, C., and Wright, A. *Microtubule defects in maize katanin mutants*. Maize Genetics Conference, Jacksonville, FL. March 2016.

Miles, N., and Wright, A. *A genetic screen to identify maize mutants with cell division defects*. Maize Genetics Conference, Jacksonville, FL. March 2016.

Perrichon, P., Kursighara, A., Pasparakis, C., Martinez Bautista, N., Mager, E.M., Stieglitz, J.D., Esbaugh, A.J., Grosell, M., Benetti, D.D., and Burggren, W.W. *Deepwater Horizon oil spill in early life stages impairs cardiac development of three Gulf of Mexico fishes (Mahi-mahi, Red drum and Gulf killifish)*. Gulf of Mexico Oil Spill and Ecosystem Science Conference. Tampa, FL. Feb 2016.

Rojas Antich, M., Wood, A., Martinez, N., Perrichon, P., Dubansky, B., and Burggren, W.W. (2016). *Exposure to PAHs during early stages of development of the chicken embryo (Gallus gallus) affects cardiovascular physiology*. Gulf of Mexico Oil Spill and Ecosystem Science Conference. Tampa, FL. Feb 2016.

Sirsat, T.S. and Dzialowski, E.M. *Ventilation changes associated with hatching and maturation of an endothermic phenotype in the Pekin duck, Anas platyrhynchos*. The Society for Integrative & Comparative Biology annual meeting, Portland, OR. Jan 2016.

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Physical Location

1511 West Sycamore  
Life Sciences Complex  
Denton, TX 76203-5017, USA

Phone (940) 565-3591

Mailing Address

University of North Texas, Department of Biological Sciences  
1155 Union Circle # 305220  
Denton, TX 76203-5017, USA

Fax: (940) 565-3821

Web: <https://biology.unt.edu/>