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Tox Quarterly Newsletter Editors: My Hua, Victoria McGruer, and ETOX Mini-GSA Members Content Provided by: My Hua, Victoria McGruer, Aalekhya Reddam, and ETOX Mini-GSA Members

ETOX Students at 2019 Riverside Long Night of Arts and Innovation

by My Hua

On October 10th, 2019 the city of Riverside hosted the Long Night of Arts and Innovation. The event showcases Riverside's accomplishments in arts and sciences by local institutions including the University of California, Riverside; Riverside Community College; surrounding school districts and public schools, as well as local companies and departments of the City of Riverside. This year Dr. Prue Talbot and ETOX graduate students My Hua and Esther Omaiye organized the "Vaping-Associated Pulmonary Illness" tabling event where they talked to community members about their research with electronic cigarettes and the health effects associated with their use.



Pictured left is the Vaping-Associated Pulmonary Illness table Dr Prue Talbot and graduate students My Hua and Esther Omaiye presented at. IN THIS ISSUE

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Dr. Linlin Zhao Assistant Professor of the Chemistry Department & faculty member of the Environmental Toxicology Program.

UCR ETOX Faculty Spotlight: Dr. Linlin Zhao

by Victoria McGruer

Dr. Linlin Zhao received his Ph.D. degree in Bioanalytical Chemistry from University of Connecticut in 2010. As a postdoctoral fellow at Vanderbilt University, Dr. Zhao studied the enzymology of specialized DNA polymerases in the context of bypassing carcinogen-modified DNA. Before joining UCR, he was a tenure-track assistant professor in the Department of Chemistry and Biochemistry at Central Michigan University (2013-2019). His current research focuses on understanding the chemical/molecular basis of mitochondrial DNA genome turnover, a process implicated in mitochondrial diseases and immune responses. His long-term goal is to develop novel methods to manipulate mitochondrial DNA for mitochondrial disease treatments.

We also had the opportunity to sit down for a Q&A Session with Dr. Zhao:

Victoria: What inspired you to go into research?

Dr. Zhao: I'm very interested in human genetic material because of it's importance. I chose the mitochondria field partly because there were so many unknowns regarding the mitochondrial genome and that mitochondria have been implicated in many human diseases. Also, what motivates me is the fact that we have a lot of mitochondrial disease patients that need help. There is currently no treatment for mitochondrial diseases. Together, these reasons drove me to seek answers for a lot of exciting questions in the mitochondrial field.

Victoria: How would you describe your research to someone who is not in your field?

Dr. Zhao: My work focuses on examining the DNA damage response process in the mitochondria. This is important because the malfunction of mitochondria has been implicated in common diseases such as cancer neurodegeneration, and mitochondrial specific diseases. This unique compartment is the only one that houses genetic material besides the nucleus. We are interested in the genome maintenance process in

2. that houses genetic material besides the nucleus. We are interested in the genome maintenance process in mitochondria and how mitochondria respond to various stress factors. We're using biochemical and molecular cell biology approaches to understand mechanistically how exactly the living system works in response to the DNA damage inside of the mitochondria. We hope to gain insights into the mitochondrial pathogenesis process and help to develop better intervention strategies for mitochondrial diseases.

Victoria: Why are you interested in academia?

Dr. Zhao: I think it'd be the aspect that I can have the intellectual freedom to pursue the things I like. Also, an important aspect is that I would be able to interact with young minds and students. That will keep me young.

Victoria: What piece of advice do you wish you were given when you were a graduate student??

Dr. Zhao: I wish I were given some advice on how to read articles efficiently and effectively when I was in grad school. I felt there was a large amount of literature out there, and I did not have a clue where to start. It is probably true for any grad student who has stepped into a new field. If students learn how to dissect literature articles, it will help tremendously in understanding their research projects.

Victoria: How do you like Riverside and UCR?

5.

Dr. Zhao: I like it a lot. I am most excited about the research environment at UCR and the exciting opportunities to work with colleagues and students at UCR. Another important reason for my family to move here is the diversity in California and at UCR. And thirdly, of course, is the weather. We moved to Riverside at the end of June and came at the right time to enjoy the Southern California has to offer. Weatherwise we look forward to winter. My family and I are excited to exploring the area more as well.

Victoria: What do you do outside of lab for fun?

6. Dr. Zhao: When not in the lab, I enjoy traveling very much. Though with my two young children nowadays, we haven't been doing that for a couple of years. But when they get a little older, our next travel plan is to Alaska.

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Environmental Toxicology Graduate Student News Compiled by Mini-ENTX GSA Members

UC Riverside CNAS Science Slam Competition on November 16th, 2019 CNAS is hosting an alumni reception for Homecoming on November 16th, 2019 from 3-4 PM in LSP 1500. Six graduate students from six disciplines (including ETOX) will be competing at the event.

ENTX Graduate Students Attend Meetings and Conferences

Roxana Coreas at the Annual NIEHS NHIR Consortium Meeting

Environmental Toxicology PhD student Roxana Coreas presented a poster at the 4th Annual NIEHS NHIR Consortium Meeting in October 2019. Each year, a consortium of several laboratories throughout the nation meet to discuss the trends in nanotoxicology and collaborate on interdisciplinary projects involving engineered nanomaterials. The main topic during this meeting was evaluating the potential toxicity induced by 2-dimensional materials. Current efforts in the Zhong lab aim at identifying biocoronas that develop around 2D nanomaterials and investigating the biological effects that arise due to the formation of nanomaterial-biocorona complexe.

My Hua and Esther Omaiye Attend 2019 NIH Tobacco Regulatory Science Meeting

PhD students My Hua and Esther Omaiye attended the 3rd Annual Tobacco Regulatory Science Meeting in Bethesda, Maryland this past October 2019. The meeting is intended to update funded NIH researchers on the current progress and scientific investigations in the field of tobacco regulatory science. Over 500 people registered for the conference and My and Esther presented posters on health effects related to e-cigarettes and the cytotoxicity of counterfeit e-cigarette liquids.

UCR ENTX Faculty in the News!

• **Research conducted by Dr. Prue Talbot's lab** was recently highlighted in the UCR news which found third-hand smoke can potentially affect human cells. **Dr. David Volz** was also a collaborator on the project. Read the article online:

https://news.ucr.edu/articles/2019/06/28/scientists-find-thirdhand-smoke-affects-cells-humans

• **Research conducted by Dr. Nicole zur Nieden and Dr. David Volz w**as recently highlighted in the UCR news. The study examines effects of chemicals on birth defects using stem cells for screening. Read the article online:

https://news.ucr.edu/articles/2019/09/18/testing-chemicals-birth-defects-using-stem-cells-not-mice

GSA General Announcements

Compiled by Mini-ENTX GSA Members

 The GSA website (gsa.ucr.edu) has been revamped and allows users to easily access needed information (travel grants, resources, information for departmental GSAs). Check it out!

Other ETOX Program-Related Announcements

Please register for the ETOX GSA on highlander link.
(at https://highlanderlink.ucr.edu/organization/etoxmini-gsa). This does not require you to be involved on the ETOX GSA board but *it allows us to fund events for the program* (coffee, dinner, etc.)

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ENTX Program Student and Faculty Publications

 Baggio C, Udompholkul P, Gambini L,Salem AF, Jossart J, Perry JJP, & Pellecchia M. (2019). Aryl-fluorosulfate-based Lysine Covalent pan-Inhibitors of Apoptosis Proteins (IAP) Antagonists with Cellular Efficacy. Journal of Medicinal Chemistry. Epub September 24, 2019. doi: 10.1021/acs.jmedchem.9b01108. "F1000Prime Recommended"

2. Cryder Z, Greenberg L, Richards J, Wolf DC, Luo Y, Gan J. 2019. Fiproles in urban surface runoff: Understanding sources and causes of contamination. Environmental Pollution. doi: 10.1016/j.envpol.2019.04.060

3. Dasgupta S, Vliet SMF, Cheng V, Mitchell CA, Kirkwood J, Vollaro A, Hur M, Mehdizadeh C, Volz DC. 2019. Complex interplay among nuclear receptor ligands, cytosine methylation, and the metabolome in driving tris(1,3-dichloro-2-propyl)phosphate-induced epiboly defects in zebrafish. Environ. Sci. Technol. doi: 10.1021/acs.est.9b04127.

 Dennis, TN, Jossart, JJ, Perry JJP. Mitochondrial Dysfunction Affecting the Peripheral Nervous System in Diabetic Neuropathy and Avenues for Therapy. Handbook on Mitochondrial Dysfunction. Editor: Shamim I. Ahmad. CRC Press, Taylor & Francis Group. Boca Raton, FL 33487-2742. Accepted (2019). Corresponding author.

5. Gambini L, Baggio C, Udompholkul P, Jossart J, Salem AF, Perry JJP, Pellecchia M. Covalent Inhibitors of Protein-Protein Interactions Targeting Lysine, Tyrosine or Histidine Residues. J Med Chem. 2019 May 29. doi: 10.1021/acs.jmedchem.9b00561.

6. He, X. et al. PRMT1-mediated FLT3 arginine methylation promotes maintenance of FLT3-ITD 1 acute myeloid leukemia. 2019. Blood. Doi: 10.1182/blood.2019001282

7. Hua, M., Sadah, S., Hristidis, V., Talbot P. 2019. Automated Mining of Vaping-Associated Health Effects Reported in Online Forums. Journal of Medical Informatics Research. In press.

8. Kumar, GB, Nair BG, Perry JJP, Martin DBC. 2019. Recent insights into natural product inhibitors of matrix metalloproteinases. MedChemChomm. epub Oct 7th 2019. doi: 10/1039/c9md00165d.

9. Li J, Wang J, Taylor AR, Cryder Z, Schlenk D, Gan J. Inference of organophosphate ester emission history from marine sediment cores impacted by wastewater effluents. 2019. Environmental Science & Technology. Doi: 10.1021/acs.est.9b01713

10. Morgan MA,Griffith CM, Volz DC, Larive CK. 2019. TDCIPP exposure affects Artemia franciscana growth and osmoregulation. Sci. Total Environ. doi:10.1016/j.scitotenv.2019.07.292.

11. Pozuelos GL, Kagda MS, Schick S, Girke T, Volz DC, Talbot P. 2019. Experimental acute exposure to thirdhand smoke and changes in the human nasal epithelial transcriptome: A randomized clinical trial. JAMA Network Open 2(6):e196362.

ENTX Program Student and Faculty Publications (cont.)

12. Reddam A, Mitchell CA, Dasgupta S, Kirkwood JS, Vollaro A, Hur M, Volz DC. 2019. mRNAsequencing identifies liver as a potential target organ for triphenyl phosphate in embryonic zebrafish. Toxicol. Sci. doi: 10.1093/toxsci/kfz169.

13. Vliet SMF, Dasgupta S, Sparks NRL, Kirkwood JS, Vollaro A, Hur M, zur Nieden NI, Volz DC. 2019. Maternal-to-zygotic transition as a potential target for niclosamide during early embryogenesis. Toxicol. Appl. Pharmacol. doi: 10.1016/j.taap.2019.114699.

14. Weigel WK 3rd, Dennis TN, Kang AS, Perry JJP^{*}, Martin DBC^{*}. A Heck-Based Strategy to Generate Anacardic Acids and Related Phenolic Lipids for Isofrom-Specific Bioactivity Profiling. Org. Lett. (2018) Oct 5;20(19):6234-6238. Epub 2018 Sep 25. *Co-corresponding author.

15. Wolf DC, Cryder Z, Gan J. 2019. Soil bacterial community dynamics following surfactant addition and bioaugmentation in pyrene-contaminated soils. Chemosphere. doi: 10.1016/j.chemosphere.2019.05.145

16. Xu W, Boyd RM, Tree MO, Samkari F, Zhao L. 2019. Mitochondrial transcription factor A promotes DNA strand cleavage at abasic sites. PNAS. Doi: 10.1073/pnas.1911252116

ENTX Program Faculty Awarded Grants

Dr. zur Nieden and Dr. David Volz

EPA grant awarded to zur Nieden and Volz mentioned in US EPA press release and CNN article inept. 2019 (see: https://www.epa.gov/newsreleases/administrator-wheeler-signs-memo-reduceanimal-testing-awards-425-million-advance and

https://www.cnn.com/2019/09/10/politics/epa-animal-testing/index.html

Dr. Margarita Curras-Collazo and Dr. zur Nieden

Grant awarded by the Department of Defense, PI Margarita Curras-Collazo and Co-PI Nicole zur Nieden GW180072 - "Brain-Body Pathways Contributing to Gulf War Illness.

Dr. John Perry

DOD CDRMP Breast Cancer level 2 awarded to Partnering-PI John Jefferson Perry, Sept 2019 (3-years).

NIH NCI P20 awarded to Co-PI John Jefferson Perry, Sept 2019 (4-years)

Congratulations to all graduate students and faculty of the Environmental Toxicology Program for their recent publications and grant awards!! Please be sure to keep the program posted with any upcoming publications, grants, and awards/honors for future newsletters.

Have any news for our Winter 2019 Edition? Please email My (Crystal) Hua (mhua002@ucr.edu) or Victoria McGruer (vmcgr001@ucr.edu) and share any ENTX-related news/events.

Environmental Toxicology Fall Program 20th November

LSP 2550 5:00 PM

Middle Eastern food will be provided Please bring a side and BYOB

Vegetarian, Vegan and Gluten Free options available! Significant others are more than welcome Please see newsletter email for Food and Beverage Sign-up

