

Interdisciplinary Graduate Program in HUMAN TOXICOLOGY



Human Toxicology former and current students with faculty at the SOT Annual Meeting in Baltimore

Dear students, faculty, alumni and friends of the Human Toxicology Program at Iowa,

Another year has passed and I am again pleased to inform you that through the outstanding work of our faculty and students, and the good will and contributions of our alumni, progress of the Toxicology Program at the University of Iowa continues to be impressive. Now twelve years since the re-founding of our new program in 2007, the Interdisciplinary Graduate Program in Human Toxicology has grown to thirty-four affiliated faculty (adding six more faculty members this year) and twenty-seven doctoral students!

As before, our students, faculty and alumni have received many accolades and prizes this year. I have listed a few on the following pages, along with some milestones.

For next year, we are again planning an **Iowa gathering** at the upcoming Society of Toxicology 59th annual meeting in Anaheim, California. There you will have an opportunity to meet our alums and to visit with our current graduate students and faculty; details to follow. Please join us if you plan to be at the meeting or live in the area.

Please continue to support our efforts and spread the word about our Program. Like all training programs, we are always looking for good students. We certainly wish you the very best and would welcome you when you are in the neighborhood.

Our very best wishes for the holidays!

Please check out our website at

<http://toxicology.grad.uiowa.edu/>



Larry W Robertson, PhD, MPH, ATS

Professor & Program Director
UI Oakdale Campus, # 219 IREH
Iowa City, IA 52242-5000

Tel: 319-335-4346; Fax: 319-335-4290

larry-robertson@uiowa.edu

<http://toxicology.grad.uiowa.edu/>

Student and Postdoc News:

Rahman and Stolwijk receive Research Fellowships



The Human Toxicology Program has been successful in submitting and receiving Fellowship Awards from the University of Iowa Graduate College. Muhammad Rahman (left) received the Post Comprehensive Research Award in the spring of 2019. This award recognizes students with distinguished academic achievement during their early graduate training. Muhammad also received a Graduate College Summer Fellowship. Jeffrey Stolwijk (right) was awarded a Post Comprehensive Research Award for Fall 2019.



Students Present at Central States Toxicology Conference



Twenty-two Human Toxicology students, staff, and faculty traveled to the Central States Society of Toxicology Meeting in Des Moines, Iowa September 27, 2019.

Human Toxicology students received four awards at the conference. Those receiving awards for presentations were Yinwen Cheng (second from left, back row), Nazmin Akter-Eti (third from right, back row), Nathaniel Parizek (far right, back row), and Tasnim Al-Rashaideh (far left, front row).

Students Learn in the Community

Human Toxicology student Ezazul Haque (third from right) and faculty Dr. Peter Thorne attended an EPA meeting in East Chicago, Indiana in late spring 2019. The EPA debriefed East Chicago residents on its planned cleanup activities for the U.S.S. Lead Superfund site. Dr. Thorne's group have been studying airborne PCBs and other contaminant exposures for residents in East Chicago and Columbus Junction since 2010. During the past year, the group has also been meeting regularly with an East Chicago Community Activist Group to hear and address their concerns about lead contamination in their community.



Students and Faculty Present at Society of Toxicology Meeting

Human Toxicology students Yinwen Cheng, Ben Elser, Nazmin Eti, and Jeffrey Stolwijk presented at the 2019 Society of Toxicology Annual Meeting in Baltimore, Maryland in March. Faculty member Dr. Jonathan Doorn also presented a poster at the meeting. Six more presentations at the meeting involved research by Human Toxicology faculty.



Akter-Eti Finalist for Three Minute Thesis Award

Every year the University of Iowa Graduate College sponsors a Three Minute Thesis competition. This challenges graduate students to communicate their research in three minutes or less in non-specialist language. Nazmin Akter-Eti was chosen as a finalist for this year's award. In addition, Nazmin was awarded best poster presentation at the 2019 College of Public Health Research Week.

Congratulations to Our Graduate!

Yifang Wang has defended and graduated with a Master's degree in August 2019. Her thesis was entitled "Pulmonary Toxicity Assessment Following Aerosolization of Engineered Nanomaterials Using an *in Vitro* Air-Liquid Interface Method." Pictured are her thesis committee Dr. Gabriele Ludewig, Dr. Peter Thorne (mentor), and Dr. Larry Robertson.



The Human Toxicology Program Welcomes Five New Students This Year:



Ling Cheng received her B.S. in Preventive Medicine from Tongji Medical College of Huazhong University of Science and Technology. During her undergraduate studies, she participated in research with the emphasis of the effects and mechanism of environment factors on human health.

Her previous research focused on the toxic mechanism of Endocrine Disrupting Chemicals (EDCs), which aroused her interest in probing into the mechanism of hazardous substances. She is interested in biomedical engineering and genetics and hopes to use the experience she gains from her graduate study to work as an independent researcher into the future.

Valeria Cota graduated from Buena Vista University (BVU) with a B.S. in biochemistry and biology. She previously focused on Microcystin research at the University of Iowa Lakeside Laboratory where she conducted water monitoring and compared Microcystin abundance among Okoboji area lakes. She used that knowledge to conduct a 3-year undergraduate research project while at BVU. She also traveled to southern Chile where she focused on the presence of Microcystin toxin in Chilean lichen species.



Although her previous research interests focused on environmental toxicology, she is interested in human toxicology and would like to use what she has learned to become a toxicologist in the pharmaceutical industry. When not in class or in the lab, she likes to play soccer, go hiking, and paint.



Ishrat Nourin Khan completed her BS and MS in nutrition and food science from Institute of Nutrition and Food Science (INFS), University of Dhaka, Bangladesh. Her MS dissertation was focused on antioxidant vitamins (beta-carotene and vitamin C) and minerals (copper, manganese, selenium, and zinc) content in locally available vegetables of Bangladesh. She joined INFS as lecturer in May 2016 and was involved in teaching, mentoring and research.

Her scholarly excellence was been reflected in her involvement with government and international organizations to provide technical support in nutrition for policy making in Bangladesh. She was also able to publish three research articles in peer

review publications. Her research interest lies in the field of food functionality, food safety and toxicology. She is excited to be a part of the doctoral program of Human Toxicology at the University of Iowa. She believes the interdisciplinary approach, bench to bedside platform of research, and stellar faculty caliber that the Human Toxicology Program offers will enable her to unlock her potential to be a next generation toxicologist.

Neha Paranjape come from Pune, a city in Indian western state of Maharashtra. She completed her Bachelors in Microbiology from Savitribai Phule Pune University (formerly, University of Pune) and Masters in Virology from the National Institute of Virology, India. Her Master's thesis project was in the field of bat virology and was carried out at the University of Saskatchewan, Canada under the guidance of Prof. Misra where she worked to analyze the effect of intracellular stress responses on the lytic replication of a novel bat gamma herpes virus.



She is glad to have been accepted in the Interdisciplinary Graduate program in Human Toxicology at the University of Iowa. Having developed an interest in applied sciences and because of the interdisciplinary nature of the field and the vast applicability of it in basic research as well as in industry, she chose to study toxicology for her PhD. She looks forward to and hopes to pursue a career in industry after her graduation in toxicology.

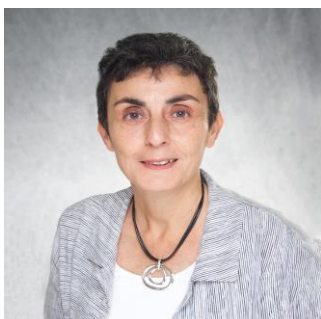


Yuying Zhao received her B.S. in Public Health from Wannan Medical College and an M.S. in Hygiene Toxicology from Shandong University. Her previous research was focused on the role of Kupffer cells in the mechanism of alcoholic liver disease. This experience motivated me to explore further about toxicants. She really enjoys translating my ideas into experiments.

In the spring of 2019, she was excited to join the Human Toxicology Program at the University of Iowa. One of the reasons why she likes this program is that it values students' innovation and offers freedom to choose a research direction. She hopes to make a difference in toxicology someday.

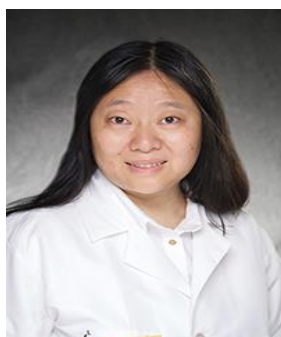
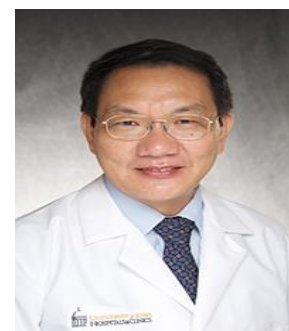
New Faculty Join Our Program

Dr. Bryan Allen joined the Human Toxicology faculty in September 2019. His research focuses on understanding the basic science mechanisms by which pharmacological ascorbate can selectively act as a pro-oxidant in brain and lung cancer vs. normal cells, for the purpose of developing novel combined modality chemo-radio-therapies. One of his research projects involves elucidating the role of ROS- more specifically mitochondrial superoxide in age-associated cancer therapy induced side effects on normal tissues. Another avenue of research currently being pursued is coupling the use of pharmacological ascorbate and high dose radiation therapy with immunotherapy as a strategy to increase T-cell mediated tumor killing



Dr. Corinne Griguer joined the Human Toxicology faculty in January 2019. Her research evaluates the hypothesis that the overall survival time of a subject with newly diagnosed Glioblastoma multiforme (GBM), the most common malignant primary brain tumor, is a function of the cytochrome c oxidase (CcO) enzymatic activity in the tumor. In particular, tumors with high CcO activity are associated with shorter time of overall survival when compared to tumors with low CcO activity treated with standard of care therapy.

Dr. Bing-Hua Jiang joined the Human Toxicology Program in February 2019. His laboratory studies the role and mechanism of signaling pathways, reactive oxygen species (ROS) and microRNAs in angiogenesis, tumorigenesis and therapeutic resistance with the special interest in: 1) Mechanisms of metal-induced malignant transformation and carcinogenesis; 2) ROS and ROS-regulated miRNAs and signaling pathways in ovarian cancer treatment resistance; 3) Mechanisms of acquired resistance of lung cancer cells to treatment with Epidermal Growth Factor Receptor Tyrosine Kinase Inhibitors (EGFR-TKIs). The laboratory is supported by multiple NIH R01 grants for these projects.



Dr. Ling-Zhi Liu also joined the Human Toxicology Program in February 2019. Her laboratory studies signaling pathways in tumorigenesis and cancer development at the molecular level. The laboratory is interested in both basic and translational studies. Projects include: 1) The role and mechanisms of signaling pathways in arsenic- and chromium- induced carcinogenesis; 2) Novel mechanisms of therapeutic resistance in ovarian cancer; 3) Mechanisms of acquired resistance to Epidermal Growth Factor Receptor Tyrosine Kinase Inhibitors (EGFR-TKIs) and radiation treatment in non-small cell lung cancer (NSCLC), and strategies to delay or recover the sensitivity of cancer cells to treatment; 4) The role of the tumor microenvironment in breast cancer development and treatment resistance.

Dr. Kamal Rahmouni joined the Human Toxicology Faculty in November 2019. His research is aimed at the identification of the neuroanatomical and molecular pathways involved in the regulation of metabolic, autonomic and cardiovascular functions. He also investigates the dysregulation of these pathways in disease condition such as obesity and diabetes. Specifically, his lab focuses on understanding the exact role of the different downstream pathways associated with the insulin and leptin receptors in the regulation of the physiological cues.



Dr. Thomas Rutkowski was the third faculty to join the Human Toxicology program in February 2018. His research attempts to answer the question: When a cell encounters stress (i.e., anything that perturbs normal cellular function), how does it decide whether to adapt to the stress or die? His lab uses diverse experimental approaches to address this question, encompassing systems biology, molecular and cell biology, and vertebrate genetics and physiology. By tackling this question, his lab hopes to better understand diseases of stress, including neurodegeneration, cancer, metabolic syndrome, and others, and even normal cellular development and function.

Faculty/Staff News:

Dr. Garry Buettner from was honored by being included on the University of Iowa Carver College of Medicine Wall of Scholarship. Three papers were honored for having over 1000 citations in at least two of the three high profile citation indices: Google Scholar, Scopus, and Web of Science. The papers provide essential concepts, tools, and methods for quantitatively observing and measuring free radicals and oxidative stress in biological systems.





Human Toxicology faculty member and Iowa Superfund Research Program (ISRP) Director **Dr. Keri Hornbuckle** was part of an AP article and video regarding PCBs in schools. The article was entitled “Toxic PCBs linger in schools; EPA, lawmakers fail to act.” The article was covered by most news organizations including the New York Times, Washington Post, US News and World Report, Chicago Tribune. Hornbuckle suggests that the EPA should recommend that schools test classroom air for PCBs, then identify and address specific sources if the results are elevated.

Human Toxicology Director **Dr. Larry Robertson** was invited to present on the topic “Use of mechanistic data for evidence integration across PCBs as a chemical class” at the National Academy of Sciences in Washington DC on June 3-4, 2019. The conference was entitled “Evidence integration in chemical assessments: Challenges faced in developing and communicating human health effect conclusions.”



Dr. Jerry Schnoor was recognized for his work several times in 2019. In April, he was awarded the American Chemical Society Award for Creative Advances in Environmental Science and Technology at their annual meeting. He was recognized for pioneering the science and practice of phytoremediation, a natural, green, and cost-effective means for cleaning hazardous waste sites, contaminated soil and groundwater, and agricultural runoff. In August, he received the Environmental Chemistry Outstanding Achievement Award from the Chinese Chemical Society.

Alumni News:

Brita Kilburg-Basnyat won the 2019 Society of Toxicology Best Postdoctoral Publication Award. The award is for outstanding work accomplished during a formal mentored postdoctoral traineeships as recognized by recently published exceptional papers in the field of toxicology.

Visarut Buransudja is an Academic Instructor at Chulalongkorn University, Bangkok, Thailand.

Elise (Fletcher) Higginbotham was promoted to North American Business Leader, Toxicology at MedTest Dx in Chicago, Illinois.

Fabian Grimm was awarded the ALTEX Prize 2019, by the editorial board of ALTEX (Alternatives to Animal Experimentation) for the best manuscript published in ALTEX (during 2018).

Mengshi Li is a Research Assistant in Dr. Michael Schultz’s Laboratory at the University of Iowa.

Miao Li started a new position as a Visiting Scientist at the Division of Biochemical Toxicology, National Center for Toxicological Research, Food and Drug Administration, in Jefferson, Arkansas.

Taehyun Roh is an Assistant Professor in the Department of Epidemiology and Biostatistics, School of Public Health, at Texas A and M University, College Station, Texas.

Eric Uwimana is a post-doctorate fellow at the University of Arizona in Tucson, Arizona.

Thomas van ’t Erve is a Toxicologist at the Michigan Department of Health and Human Services, Lansing, Michigan.

Yifang Wang is a Research Assistant in the Pathology Research Laboratories at the University of Iowa.