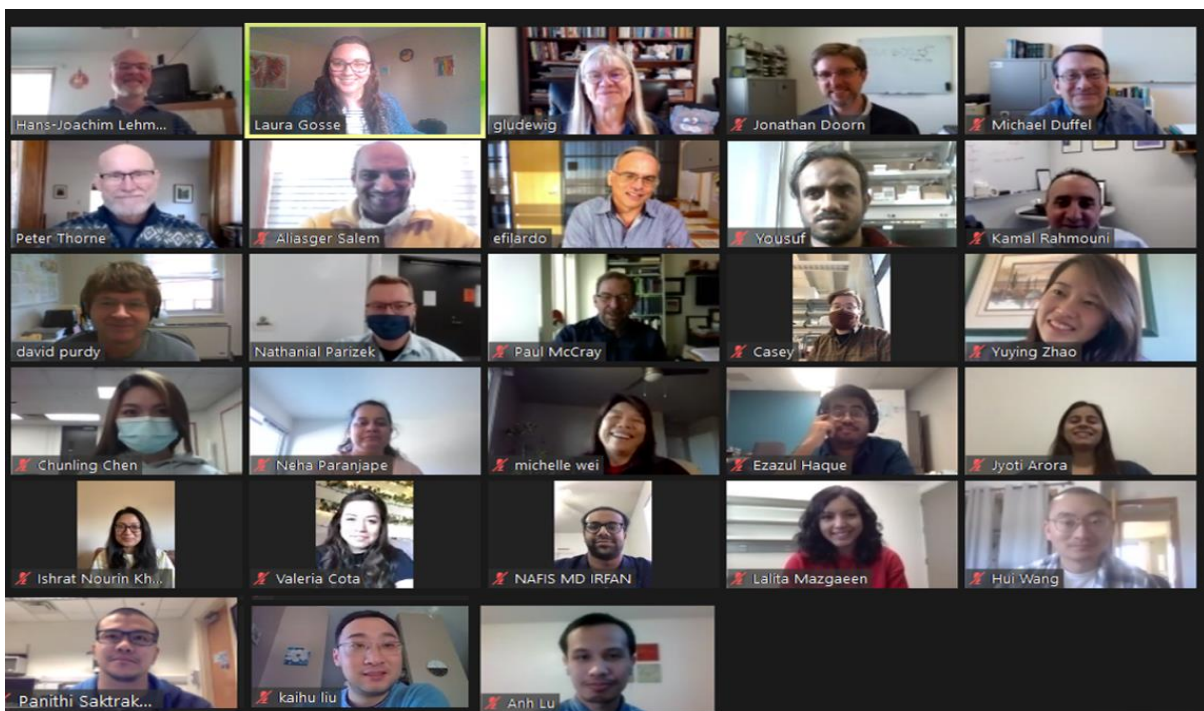


Interdisciplinary Graduate Program in HUMAN TOXICOLOGY

December 2020



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

Greeting from snowy Iowa City. I hope you are all doing well as we finish a most unusual year. First, I wish to congratulate Dr. Larry Robertson on his retirement last April. Larry joined the faculty of the Department of Occupational and Environmental Health in March 2003 and led our program in its first 12 years. He was also the director of the Iowa Superfund Research Program from 2006- 2018. The impact of Larry's leadership will continue for many years. I am honored to serve as the second Director of the Human Toxicology Program.

The past year has been a challenging one due to the COVID-19 pandemic. This was especially hard for our first-year students who had challenges securing laboratory research rotations while laboratories were shut down. While our students have shown resilience, they eagerly await the time when they can go back full-time to doing research in the lab and sharing ideas face-to-face with mentors and with their classmates in a 'real' classroom, laboratory, and seminar room.

Despite the obstacles caused by the pandemic, through the perseverance and hard work of our faculty and students, and the contributions from our alumni, the progress of the Human Toxicology Program continues to be impressive. We added two more new faculty this year and are actively recruiting more new students and new faculty. We have also formed a HTP Graduate Student Advisory Committee that has provided excellent suggestions to me for program enhancements.

HTP 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. I apologize if I missed yours. Please keep us updated about your achievements, we are eager to share them with our HTP family!

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

Our very best wishes for the new year.

Please check out our website at
<http://toxicology.grad.uiowa.edu/>



Peter S. Thorne, PhD

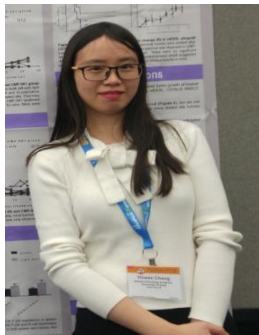
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Student News:

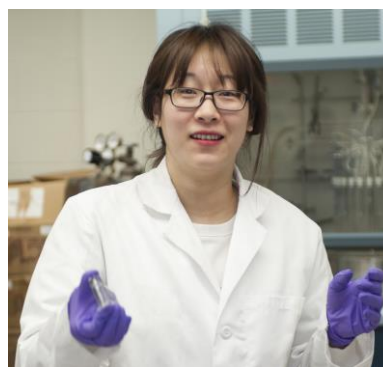
Five Students Receive Research Fellowships



The Human Toxicology Program has been successful in submitting and receiving Fellowship Awards from the University of Iowa Graduate College. This year we received six awards! **Yinwen Cheng** (left) and **Ben Elser** (right) received the Post Comprehensive Research Award in the spring of 2020. This award recognizes students with distinguished academic achievement during their early graduate training.



In the fall of 2020, **Derek Simonsen** (lower left), **Ezazul Haque** (middle), and **Duo Zhang** (lower right) also received the Post Comprehensive Research Award. In addition, Derek received a Summer Fellowship from the Graduate College.



Students Present at Central States Toxicology Conference



Seven Human Toxicology students presented their research virtually for the CSSOT meeting in the fall of 2020. Three students received awards for poster presentations:

- **Nate Parizek** – 2nd place short presentation award
- **Derek Simonsen** – 2nd place poster presentation award
- **Ben Elser** – 3rd place poster presentation award

Congratulations to Our 2020 Graduates!

Spring 2020

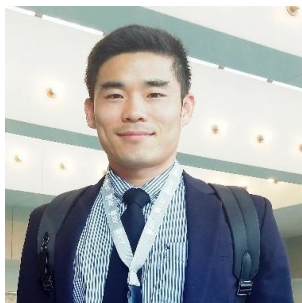
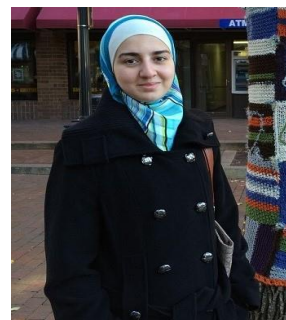
Yinwen Cheng (pictured above) defended and graduated with a PhD degree. Her thesis was entitled "Anti-Tumor Responses of Endosomal Toll-Like Receptor-Based Immunotherapy in Head and Neck Squamous Cell Carcinoma" Her dissertation committee was Dr. Andrean Simons-Burnett (mentor), Dr. Gabriele Ludewig, Dr. Aliasger Salem, Dr. Douglas Laux, Dr. George Weiner, and Dr. Jon Houtman. Yinwen is working as a Study Director in the preclinical oncology area at Crown Bioscience, Inc.

Summer 2020



Jeffrey Stolwijk defended and graduated with a PhD degree. His dissertation was entitled "Supplementation of Cell Culture Media with Seleno-L-Methionine Increases the Activity of Glutathione Peroxidases Resulting in a Reduction of Cellular Lipid Peroxidation." His dissertation committee was Dr. Garry Buettner (mentor), Dr. Douglas Spitz, Dr. Larry Robertson, Dr. Prabhat Goswami, and Dr. Michael Duffel. Jeffrey is working as a Post-Doctoral Scholar for Dr. Doug Spitz at the University of Iowa in the Department of Radiation Oncology.

Tasnim Al Rashaideh defended and graduated with a Master's degree. Her thesis was entitled "In Vitro Toxicity Assessment of Cerium Oxide and Zinc Oxide Nano-combination in Human Lung Epithelial Cells." Her thesis Committee was Dr. Peter Thorne (mentor), Dr. Garry Buettner, and Dr. Gabriele Ludewig.



Dongyoul Lee defended and graduated with a PhD degree. His dissertation was entitled "Enhancing the Therapeutic Efficacy of Peptide Receptor Radionuclide Therapy for Neuroendocrine Tumors." His dissertation committee was Dr. Michael Schultz (mentor), Dr. Jonathan Doorn, Dr. M. Sue O'Dorisio, Dr. Yusuf Menda, and Dr. Bryan Bednarz. Dr. Lee returned to the Seoul Incheon Metropolitan Area, South Korea, where he serves as a Major in the Republic of Korea Army.

Dustin May defended and graduated with a PhD degree. His dissertation was entitled "Characterization of Uranium-Series Radionuclides in Iowa Ground-Derived Drinking Water Resources." His dissertation committee was Dr. Michael Schultz (mentor), Dr. Gabriele Ludewig, Dr. R William Field, Dr. Tori Forbes, and Dr. Daniel McAlister. Dustin is the Environmental Laboratory Manager overseeing medical cannabis, inorganic chemistry, and radiochemistry testing at the Iowa State Hygienic Laboratory.



Muhammad Taifur Rahman defended and graduated with a PhD degree. His dissertation was entitled "Role of the Adaptive Immune System in Spiral Ganglion Neuron Degeneration after Deafening." His dissertation committee was Dr. Steven Green (mentor), Dr. Michael Daily, Dr. Marlan Hansen, Dr. John Colgan, Dr. Andrew Pieper, and Dr. Gabriele Ludewig. Muhammad is working as a Post-Doctoral Scholar for Dr. Marlan Hansen, Department of Otolaryngology-Head and Neck Surgery, at the University of Iowa.

The Human Toxicology Program Welcomes Five New Students This Year:



Ya'u Adamu graduated with a bachelor's degree in pharmacy from the Ahmadu Bello University, Zaria., Nigeria. His interest in toxicology started when he took a class on Clinical Tropical Toxicology during the final year of his Pharmacy School. More recently, his work with Dr. Xiaohui Xu at the Texas A&M University – College Station on the acute health effects of occupational exposure to nanoparticles on cardiopulmonary functions further strengthened his intention in joining the HTP. He is interested in researching the utility of the biomarkers of air pollution-related exposure in chronic disease prevention and human risk assessment.

He hopes to use the skills and experience gained from this program to become an outstanding scholar conducting innovative research in academia or the industrial sector for the betterment of humankind. He selected our program because of its highly student-centered nature, diverse research expertise, flexible lab rotations, and non-discriminatory funding opportunities.

Jyoti Arora is interested in the mysteries of oncology. This interest started from an initial pensive dive into reviewing available techniques while pursuing her honors study in Biochemistry and contributing to the development of an imperative technique book in India entitled “Rediscovering Genetics – A laboratory manual”. In addition to her BS in Biochemistry, she also has a M.Sc. in Medical Biotechnology from Maharshi Dayanand University, India.

She has joined the HTP this fall for her Ph.D. studies. The interdisciplinary nature of the program offers the best opportunity to employ her knowledge of cancer biology in the aspect of the toxicology field. She has high hopes to learn the attributes and skills of a researcher.



Brooke Byars is a native Iowan and a first-generation college student. She earned a B.S. in Environmental Sciences (Geosciences) from the University of Iowa followed by a M.S. in Geoscience from the UI. Her research was focused on the “Petrogenesis of Post-Glacial Basalts from Snaefellsjökull, Iceland”.

She became interested in toxicology after attending a conference session on medical geology. She is excited by the prospect to integrate two seemingly incompatible fields. Her interest in the program at the UI stems from its interdisciplinary nature and the opportunity for an individualized education. She hopes to continue her role as a researcher and lifelong learner through a career in academia.

Nafis Md. Irfan received his BS and MS in Nutrition and Food Science from Institute of Nutrition and Food Science (INFS), University of Dhaka, Bangladesh. His MS thesis focused on antioxidant activity of commonly consumed vegetables. He started his academic career as a Lecturer in INFS, University of Dhaka and has been involved in mentoring and research since May 2016. His research interest lies in the field of food functionality, public health, food safety and toxicology.

He is pleased to join the HTP as he firmly believes that the interdisciplinary nature of the program, diverse stellar faculties, state-of-the-art labs, and cutting-edge instruments will enable him to be a next gen toxicologist.



Michelle Wei is a long time Iowa resident and has lived and worked in Des Moines for over 30 years. She obtained her M.S. in Environmental Engineering and Science at the UI and her B.S and M.S in Geology at Zhongshan University in Guangzhou, China. While lacking specific research experiences at molecular and/or cellular level, she has extensive work experience in human health risk assessment.

She is very impressed with the interdisciplinary nature of the UI Human Toxicology program. With passion and desire, she hopes to refresh the old and learn the new in risk assessment.

Two New Faculty Join Our Program

Nicole K. Brogden, PharmD, PhD is Assistant Professor in the Department of Pharmaceutical Sciences and Experimental Therapeutics. Her research explores the skin as a means of drug delivery, and as a portal for understanding underlying pathologic processes within the body. The following areas are currently being explored. 1) Development of microneedle delivery techniques for patients with challenging drug delivery needs, focusing primarily on pediatric and geriatric populations. 2) Formulation of innovative cutaneous drug preparations for treatment of localized skin disorders. 3) Elucidation of age-related changes in skin barrier and mediator expression as related to immunosenescence and the development of age-related dermatology conditions.



Stefan Strack, PhD is Professor in the Department of Neuroscience and Pharmacology. He researches fundamental mechanisms underlying brain function and dysfunction. One line of investigation involves regulation of mitochondrial form and function by protein kinases and phosphatases. This research seeks to better understand and ultimately find treatments for neurodegenerative disorders, including Alzheimer's disease and spinocerebellar ataxias, as well as peripheral neuropathies, such as those caused by diabetes. A second area of research is in neurodevelopmental disorders, in particular intellectual disability and autism. He studies neurological disorders at molecular, cellular, and organismal levels, leveraging state-of-the-art biochemical, imaging, and genome-editing techniques.

Faculty/Staff News:

Dr. Larry Robertson retired as Director of the Human Toxicology Program in April 2020. Larry had been director of the program since it restarted in January 2007. He had been a mentor for all first-year toxicology students and served on many dissertation and thesis committees. Among his honors, he received the John Doull Award from the Central States Chapter of the Society of Toxicology. Dr Robertson was also the founding Director of the Iowa Superfund Research Program, which he led from its inception in 2006 until 2018. Larry is enjoying his retirement and enjoys time gardening and baking.



Human Toxicology faculty member and Iowa Superfund Research Program (ISRP) Director **Dr. Keri Hornbuckle** was awarded the UI College of Engineering Faculty Excellence Award for Service in May 2020. In addition, the ISRP was awarded a five-year \$11.4 million renewal grant to study the effects of PCBs on the environment and human health.

On April 1 2020, **Dr. Peter Thorne** turned over the directorship of the of the UI Environmental Health Sciences Research Center (EHSRC) to **Dr. Hans-Joachim Lehmler**. The EHSRC is one of 20 NIEHS Core Centers in the U.S. Funded since 1990, the EHSRC is the nation's second longest running center. The EHSRC is focused on research and engagement on adverse health effects of emerging environmental contaminants, especially among rural and agricultural populations. After 20 years as Director, Dr. Thorne has assumed the role of Deputy Director. Dr. Lehmler is currently leading the competitive renewal of the EHSRC.



Alumni News:

In the Fall of 2020, Dr. Thorne developed a new course entitled, “Professional Development in Toxicology”, to assist students in grant writing, proposal development, oral presentation skills, networking, and learning about toxicology careers. As part of the course, current students had the opportunity to listen to and ask questions to six former Human Toxicology graduates: **Claire Doskey**, Dow, Inc.; **William D. Klaren**, S.C. Johnson and Son, Inc.; **James Jacobus**, Minnesota Department of Health; **Brita Kilburg-Basnyat**, Wisconsin Division of Public Health; **Fabian A. Grimm**, ExxonMobil Biomedical Sciences, Inc.; and **Wen Xin Koh**, 3M, St. Paul, MN. Dr **Andrea Adamcakova-Dodd** of the EHSRC’s Pulmonary Toxicology Facility also presented.

Xi (Cindy) Chen started a Scientist position at Genentech, a biotechnology company headquartered in San Francisco. Previously she was Senior Research Investigator at Bristol- Myers Squibb.

Khiran Dhakal is Director and Owner of 2SD Toxicology Services LLC, a company he started in January 2020. It is located in Apex, N.C. and performs toxicology risk assessment and laboratory services.

Xin Hu was promoted to Assistant Professor at Emory University in September 2020. Previously she was Assistant Research Scientist at Emory University.

Senthilkumar PK recently started as a Toxicologist at Eastman Chemical Company in Kingsport, Tennessee. Previously he was a Toxicologist at the Centers for Disease Control and Prevention.

Eric Uwimana was awarded the Environmental Carcinogenesis Research Fellowship from the Society of Toxicology. He is currently a post-doctoral research scientist at the University of Arizona.

Xing Xin is now a Research Scientist at Colgate Palmolive in Piscataway, NJ. Previously she was an Associate Service Fellow at the CDC in Morgantown, WV.

You Can Donate to the Human Toxicology Program!

A tax-deductible gift to the UI Human Toxicology Program helps support student success through stipends, student travel grants, fees to attend scientific meetings and support for publication costs when there are no other available sources of funding. To donate you may pledge online by visiting www.givetoioowa.org.

Please follow these steps:

Step one: put “**Other**” in the search box. Then click on “**Other**” at the top of the search results below the search box. Click on “**Next: Gift Details**” on the upper right. In step two put in your donation amount and in the box under “**Where should the "OTHER" contribution be directed?**” type in “Gift to the Human Toxicology Program”. Then click on Next at the bottom and complete the donation details and payment options. Thank you!