

Interdisciplinary Graduate Program in HUMAN TOXICOLOGY

January 1, 2022



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

In January 2007, the Human Toxicology Program (HTP) began. We are now coming up on our fifteenth anniversary!

Despite the challenges 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 new faculty this year and are actively recruiting more new students and new faculty.

HTP students, faculty and alumni have received many accolades and prizes this past 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 new
website at
<http://toxicology.grad.uiowa.edu/>



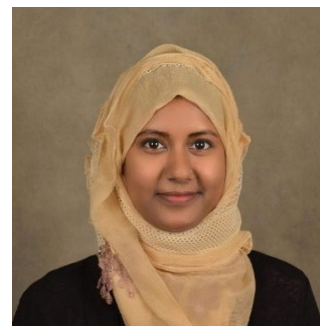
Peter S. Thorne, PhD
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Human Toxicology Program
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Student News:

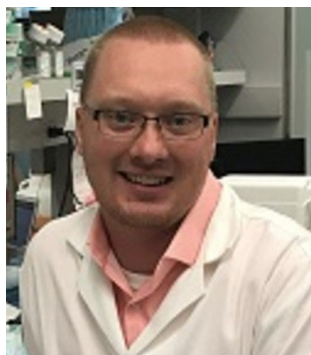
Five Students Receive Research Fellowships



The Human Toxicology Program has been successful in submitting and receiving Fellowship Awards from the University of Iowa Graduate College. This year we received five awards! **Laura Gosse-Dean** (left) and **Nazmin Akter-Eti** (right) received the Post Comprehensive Research Award in the Spring of 2021. This award recognizes students with distinguished academic achievement during their early graduate training.



In the fall of 2021, **Lalita Mazgaen** (lower left) and **Nate Parizek** (middle) also received the Post Comprehensive Research Award, and **Panithi Saktrakulkla** (lower right) was awarded a Summer Fellowship from the Graduate College.



Students Present at Toxicology Conferences



Seven Human Toxicology students presented their research virtually for the **CS-SOT** meeting in the fall of 2021. Laura Gosse-Dean and MM Hasibuzzaman presented short platform presentations and Alyssa Daniel, Nourin Ishrat Khan, Kaihua Liu, Vingie Ng, and Neha Paranjape presented in the poster sessions. MM placed third in the graduate student short platform presentations. In addition, we had a summer undergraduate research student, Naomi Meurice, present in a poster session as an Undergraduate Research Award Finalist. Six students presented at the **Society of Toxicology** virtual meeting in March 2021 as follows:

- **Nazmin Akter-Eti** - *Involvement of the Aryl Hydrocarbon Receptor to Gestational and Developmental Toxicity of PCB126 in Rats*
- **Ben Elser** - *Comparative Assessment of Alpha-Cypermethrin and Permethrin on Development of the Placenta and Fetal Brain in Mice*
- **Laura Gosse-Dean** - *The Effects of a One-Time Intraperitoneal Injection of PCB126 on the Colon Microbiome in Aryl Hydrocarbon Receptor (AhR) Knockout and Wild-Type Rats*
- **Neha Paranjape** - *Astroglial Cells and Neurotoxicity of 2,2',5,5'-Tetrachlorobiphenyl (PCB 52) and Its Metabolites*
- **Derek Simonsen** - *The Dichloroacetamide Safener Benoxacor Is Enantioselectively Metabolized in Monkey Liver Microsomes and Cytosol*
- **Duo Zhang** - *Identification of Polychlorinated Biphenyl Sulfates in Human Serum*



Ezazul Haque Wins Photo Contest Award

Human Toxicology student **Ezazul Haque** was awarded third place in the NIH Superfund Research Program Virtual Summer Scientific Art/Photo Competition. Ezazul photographed an East Chicago, Indiana daycare situated directly adjacent to a Superfund cleanup site where soil is contaminated with toxic levels of lead (Pb) and arsenic (As). He worked with Dr. Peter Thorne, not only studying toxic exposures in East Chicago but also interacting with community members to report back the results of the studies.

Student Advisory Committee Keeping Very Busy!

A Human Toxicology Student Advisory Committee was created in the Fall of 2020. During the past year they met with Dr. Thorne several times to offer suggestions about the program, matched with potential Human Toxicology PhD applicants to assist them in the application process, updated the New Tox Students FAQ booklet and are working on a booklet to assist students with choosing classes and navigating their graduate studies and program progression. They have created a new initiative to assist domestic and international students. They have partnered with local high schools to bring Human Toxicology students to the schools to engage them with hands-on science projects. They are also in the process of creating events and activities to inform undergraduate students about the field of toxicology.

The members elected in Fall 2021 included **Val Cota**, Chair; **Neha Paranjape**, Co-Chair; Programming Directors: **Jyoti Arora & Ya'u Adamu**; Welcoming Director: **Kaihua Liu**, First Year Liaison: **Priyanka Newase**, and member **Vingie Ng**. You can view their website at <https://toxicology.grad.uiowa.edu/student-advisory-committee>. We have created new Human Toxicology Program Twitter (@UiowaT) and Instagram (HumanTox.Iowa) accounts. Please follow us!

Students Receive CHEEC Scholarships

Nazmin Akter-Eti and **Laura Gosse-Dean** received Center for Health Effects of Environmental Contamination (CHEEC) Graduate Student Scholarships for Research in Environmental Health. Nazmin received her fellowship in Summer 2021 and Laura in Fall 2021. The Center for Health Effects of Environmental Contamination (CHEEC) at The University of Iowa supports and conducts Iowa-focused environmental health research relating to environmental toxicants. CHEEC's research mission is "to determine the levels of environmental contamination which can be specifically associated with human health effects."

Congratulations to Our 2021 PhD Graduates!

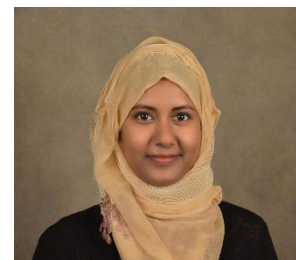
Spring 2021



Derek Simonsen's dissertation is titled, "Assessment of the Metabolism and Toxicity of the Dichloroacetamide Safener Benoxacor." His dissertation committee was Dr. Hans Joachim-Lehmle (mentor), Dr. David Cwiertny, Dr. Michael Duffel, Dr. Ashutosh Mangalam, and Dr. Kai Wang. Derek is working as a Laboratory Analyst at Foundation Analytical Laboratories in Cherokee, Iowa.

Summer 2021

Nazmin Akter-Eti's dissertation is titled, "Involvement of the Aryl Hydrocarbon Receptor in Reproductive and Developmental Toxicity of Polychlorinated Biphenyl Congener 126 (PCB126) for Prenatal and Adulthood Exposure in Rats." Her dissertation committee was Dr. Larry Robertson (mentor), Dr. Katherine Gibson-Corley, Dr. Michael Duffel, Dr. Aloysius Klingelhutz, and Dr. Gabriele Ludewig. Nazmin is working as a Post-Doctoral Scholar at the University of Cincinnati College of Medicine.



Benjamin Elser's dissertation is titled, "Mechanisms of Pyrethroid-Induced Disruption of Fetal Growth and Neurodevelopment." His dissertation Committee was Dr. Hanna Stevens (mentor), Dr. Katherine Gibson-Corley, Dr. Jonathan Doorn, Dr. Hans Joachim-Lehmle, and Dr. Laura Schultz. Ben is Study Director, Developmental and Reproductive Toxicology, at LabCorp Drug Development in Greenfield, Indiana.

Ezazul Haque's dissertation is titled, "Inhalation toxicity of emerging, exposomic forms of lead (Pb): combining population-based study with validation data from an animal model." His dissertation committee was Dr. Peter Thorne (mentor), Dr. Larry Robertson, Dr. Hanna Stevens, Dr. Kai Wang, and Dr. Benjamin Bostick from Columbia University. Ezazul is working as a Post-Doctoral Scholar at the National Institute of Environmental Health Sciences, Metabolomics Branch.



Fall 2021



Laura Gosse-Dean's dissertation is titled, "Interaction of the arylhydrocarbon receptor (AhR) and tryptophan in the hepatic and microbial toxicity of polychlorinated biphenyl 126 (PCB126)." Her dissertation committee was Dr. Gabriele Ludewig (mentor), Dr. Aloysius Klingelhutz, Dr. Ashutosh Mangalam, Dr. Larry Robertson, and Dr. Kai Wang. Laura will be a Post-Doctoral Scholar with Dr. Hans Joachim-Lehmle.

Nathanial Parizek's dissertation is titled, "Inhalation and Developmental Toxicity of Select Chalcogenide Engineered Nanomaterials." His dissertation committee was Dr. Peter Thorne (mentor), Dr. Robert Blount, Dr. Andrea Adamcakova-Dodd, Dr. Patrick O'Shaughnessy, Dr. Aliasger Salem, and Dr. Hanna Stevens. Nate has begun work at Sherwin-Williams and lives in Hastings, Minnesota.



Panithi (Kong) Saktrakulkla's dissertation is titled, "Quantitative Analysis of Polychlorinated Biphenyls (PCBs) and Hydroxylated PCBs". His dissertation committee was Dr. Keri Hornbuckle (mentor), Dr. Hans Joachim-Lehmle, Dr. Andres Martinez, Dr. Elizabeth Stone, and Dr. Kai Wang. Panithi will be returning to Thailand after the start of the New Year.

Duo (Carina) Zhang's dissertation is titled, "Polychlorinated Biphenyl (PCB) Sulfates in Human Serum." Her dissertation committee was Dr. Michael Duffel (mentor), Dr. Jonathan Doorn, Dr. Keri Hornbuckle, Dr. Peter Thorne, and Dr. Kai Wang. Duo will be returning to China in January for a position with a newly created company, Accureddi Therapeutics, which does gene therapy.



The Human Toxicology Program Welcomed Six New Students This Year:



Rachel Crawford graduated from Clarke University in Dubuque with a B.S. in Biochemistry and a minor in Biology. While at Clarke, she was involved in independent research projects which included studying the quenching of dextromethorphan fluorescence and studying the caffeine content in kombucha. Her interest in toxicology research grew from a toxin project done in her first biochemistry course. She is most interested in looking at how specific enzymes are affected by toxins found in the environment and the mechanisms involved in this toxicity.

She became interested in the Human Toxicology Program after learning of the interdisciplinary nature of the program and the program's work with the Iowa Superfund Research Program. She is excited to be able to learn about the field of toxicology from several different perspectives and fields of science and be able to see toxicology work be applied to real scenarios through the Superfund Program.

Alyssa Daniel is originally from Davenport, Iowa. She graduated with a B.S. in Chemistry with minors in Biology and Forensic Science & Justice from Saint Ambrose University in 2017. She then ventured to Tennessee, where she obtained a M.S. in Analytical Chemistry from the University of Tennessee, Knoxville in 2020. Her research there focused on using Raman Spectroscopy in forensic applications such as bone fracture aging and post-mortem interval determination. After moving back to Iowa, she worked as a contract chemist at Proctor and Gamble in the chromatography division. She currently works as an environmental lab analyst at the State Hygienic Lab.



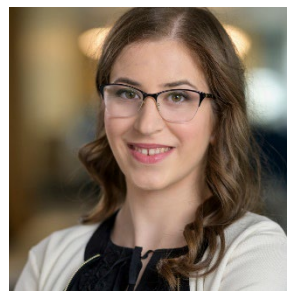
Having always been interested in the intersection between biology, chemistry, and forensics, she chose to pursue a PhD in human toxicology. She was drawn to this program because she had an amazing experience doing undergraduate research in the Iowa Superfund Research Program, and because the Human Toxicology Program offers a wide range of research options along with flexibility. In the future, she hopes to be a forensic toxicologist. When not working in the lab, she enjoys hiking, wave running, reading, playing soccer, and hanging out with her cat, Oreo.



Priyanka Newase is from Pune, a city located in the western region of India. She received her Bachelor's degree in Biotechnology from the Savitribai Phule Pune University and Master's degree in Virology from the National Institute of Virology (NIV). Her master's project focused on the molecular clock and phylogeography analysis of the Indian Ocean lineage of the Chikungunya virus. She was introduced to toxicology during her Master's, but her interest in toxicology piqued when she was working at NIV as a project assistant. During this time, she realized the scope of various pharmacologically active compounds that can be used as antivirals, as well as the toxic effects these compounds can have on human health as well as the environment.

She chose the UI Human Toxicology Program because of its interdisciplinary nature and the freedom to choose a lab depending on one's research interests. She believes that graduate training in toxicology will aid her in establishing a career in academia. She wants to continue working on the research areas that fascinate her and which can be used to benefit human health.

Milica Pavlovic comes from Serbia. She earned her degree in Pharmacy from the University of Belgrade. During the past three years, she has been working in Drug Regulatory Affairs and that gave her an opportunity to get a glimpse at the pharma/biotech industry. The decision to change the course of her career to toxicology happened because she was looking for a field that nurtures a truly multi- and interdisciplinary approach; has a very well organized, structured and supportive community; and offers diverse career opportunities aligned with her personality. She chose the Human Toxicology Program because of its collaborative environment, three lab rotations, offering strategies derived from the research which are community-meaningful, and strongly encouraging active participation in career development. When she has free time, she loves spending it on recreational activities, walking, and exploring the world of perfumes.



Farzana Rimi is from Bangladesh, where she was born and brought up in a family striving to make a difference for the mental and intellectual betterment of children. During her years of studying Bachelor of Medicine and Surgery in Bangladesh, her thirst became unquenchable to find out more about the role of genetics and environment in developing psychiatric disorders. She started to plan to go for a career in research, although it was not very conventional for the medical graduates of Bangladesh to go to the research track. After graduation, she went for fellowship training in psychiatry in Bangabandhu Sheikh Mujib Medical University, Dhaka, Bangladesh. That period helped her to realize the dire necessity of significant

improvement in treatment and management systems for mental diseases, when she saw helpless patients returning to the hospital for 'treatment'.

To better equip herself for graduate studies, she volunteered in the UI Psychiatry and Early Neurobiological Development Laboratory. There, she participated in a project working on finding the role of placenta in insecticide-induced disruption of fetal growth and neurodevelopment. The Human Toxicology Program will provide her the long-cherished opportunity to pursue research on gene-environment interplay in development of psychiatric illnesses and their effective treatment.

Nusaira Beenta Shahab is from Dhaka, the capital of Bangladesh. She completed her undergraduate degree in Pharmacy from North South University, Bangladesh. During her final year thesis, she investigated the hepatoprotective effect of a local medicinal plant, *Aphanamixis polystachya* (pitraj), on liver fibrosis induced in a rat model. After completing her Bachelor's, she moved to England to study Drug Toxicology and Safety Pharmacology in the Institute of Cancer Therapeutics at the University of Bradford, for her M.Sc. In her M.Sc thesis, she worked to detect the presence of tumor-associated proteins in tissue microarrays constructed from advanced staged colorectal cancer tissues.



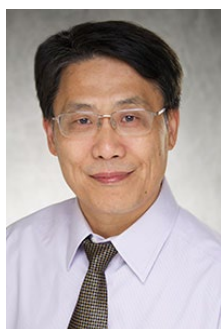
Eventually, she realized the importance of a core battery of toxicology studies and found it very appealing to study in a Ph.D. program. The UI Human Toxicology Program matches her research interests which lie in toxicology and cancer biology. She believes a Ph.D. in Human Toxicology will prepare her well for future endeavors. She loves to travel and explore new cities using a printed paper map as a guide. When at home, she loves to solve jigsaw puzzles or to watch documentaries on ancient civilizations.

Three New Faculty Join Our Program



Marie Gaine, PhD is Assistant Professor in the Department of Pharmaceutical Sciences and Experimental Therapeutics. Her research explores the role of epigenetics in the development and treatment of psychiatric disorders, and how environmental factors can influence this. She has a PhD in Molecular Biology from Queen's University, Belfast.

Jong Sung Kim, PhD is an Associate Professor in the Department of Occupational and Environmental Health. His lab has actively worked on a broad spectrum of topics including, but not limited to, nanotoxicology, exposomics, metabolomics, mechanistic toxicology, human risk assessment, and biomarkers. He was a Human Toxicology Program PhD student at the University of Iowa, graduating in 2011. He chose a career in academia and was an Associate Professor at Dalhousie University in Halifax, Canada, before returning to Iowa. Welcome back!



Shunguang Wei, PhD is an Assistant Professor of Internal Medicine-Cardiovascular Medicine. His research focuses on the neural control mechanisms underlying the regulation of cardiovascular function, hemodynamics, sympathetic outflow and neuroendocrine in cardiovascular diseases. He has a PhD in Neuroscience from the University of Iowa, Carver College of Medicine.

Faculty/Staff News:



Dr. Jonathan Doorn was promoted to Chair of the University of Iowa College of Pharmacy, Department of Pharmaceutical Sciences and Experimental Therapeutics. Dr. Doorn's expertise is studying the role of neurotransmitter metabolism in neurotoxicity and disease.

Dr. Hans-Joachim Lehmler was presented the 2021 John Doull Award at the annual Central States Chapter of the Society of Toxicology (CSSOT) Meeting. The John Doull Award is presented each year by the CSSOT to honor the contributions of its members to the discipline of toxicology and to the chapter. In addition to serving as a Human Toxicology Program mentor to many students, he also serves as Deputy Director of the Iowa Superfund Research Program and as the Director of the University of Iowa Environmental Health Sciences Research Center (EHSRC).





Human Toxicology Program faculty member **Dr. Jerald Schnoor** was selected by the Association of Environmental Engineering and Science Professors (AEESP) as the AEESP Fellow 2021. Dr. Schnoor received the award at the association's annual meeting, held virtually on July 14.

Dr. Peter Thorne, Human Toxicology Program Director, has been named to the Science Advisory Board (SAB) of the U.S. Environmental Protection Agency (EPA). The appointment was announced Aug. 2, 2021 by EPA Administrator Michael Regan. Dr. Thorne previously served on the SAB from 2011 to 2017, including a two-year term as SAB Chair from 2015 to 2017.



Alumni News and Transitions:

Visarut Buranasudja, PhD, was promoted to Assistant Dean of Faculty, Pharmaceutical Sciences, Chulalongkorn University, Thailand.

Kiran Dhakal, PhD, is a Toxicology Consultant at iuvo BioScience. He is also the Director of 2SD Toxicology Services, which provides clinical and forensic toxicology laboratory services.

Claire Doskey, PhD, is a Senior Toxicology Specialist at Dow Chemical. She began working at Dow in 2018.

Fabian Grimm, PhD, and family have moved back to Germany. He will be starting a new position after the start of the New Year.

Bill Klaren, PhD, started a new position with ToxStrategies as a Senior Scientist and will be relocating to Asheville, NC. He also passed the DABT so he is now a Diplomat of the American Board of Toxicology.

Ian Lai, PhD, is Head of Animal Science at D2G Oncology in Mountain View, California. D2G Oncology is a biotechnology company that specializes in developing drugs to genotypes to transform precision cancer therapeutics.

Mengshi Li, PhD, is now the Principal Scientist at Viewpoint Molecular Targeting, Inc. Viewpoint Molecular Targeting is a radiopharmaceutical company developing precision oncology therapeutics and complementary diagnostic imaging agents.

Cunxian Ma became a Senior Statistical Programmer at Parexel. Parexel is a global biopharmaceutical services which provides contract research, consulting, medical communications, and technology solutions.

Aditya Stanam, PhD, was promoted as the Director of Process Improvement at Prime Healthcare, California.

Xiaofeng Wang, PhD, was promoted to Director, Pharmacometrics Team Lead, at Otsuka Pharmaceutical Companies (U.S.)

Chet Duda passed away on October 23, 2021. Chet was employed as a Purification Scientist III at Integrated DNA Technologies. He received a Master's degree in Human Toxicology in 2012.

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!