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CENTER FOR INTEGRATIVE TOXICOLOGY

2013-2014 Annual Report

MICHIGAN STATE
UNIVERSITY

Annual Report 2013-2014

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A TRADITION OF EXCELLENCE

The Michigan State University Center for Integrative Toxicology (CIT) is a multidisciplinary academic unit that supports and coordinates research and graduate education activities for faculty interested in various aspects of toxicology. The Center is a successor to the Institute for Environmental Toxicology and the Center for Environmental Toxicology, the latter founded in 1978. While the name of the unit has changed over the years to denote changes in the leadership and academic position, the mission has been the same. For over 30 years, toxicology at Michigan State has provided excellence in training graduate students, facilitating research, and providing service to the State of Michigan when needed. The successes generated in these endeavors have resulted in recognition of Michigan State as a leader in academic toxicology.

The Center for Environmental Toxicology was initiated primarily to assist the State of Michigan with environmental contamination issues such as those arising from the PBB (polybrominated biphenyls) incident in the early 1970s. That unfortunate event was initiated by the accidental contamination of feed for dairy cattle with PBBs. These dioxin-like chemicals and dioxin itself remain a major topic of research at Michigan State University.

Two years after the founding of the Center for Environmental Toxicology, a dual-degree Ph.D. program in environmental toxicology was offered in conjunction with several cooperating departments. The characteristics of the program were unique at that time as students were required to complete the Ph.D. requirements of a department of their choice in addition to the didactic requirements and toxicology research specified by the Center. The quality of this multi-departmental effort was recognized by the National Institutes of Health in 1989 with the award of a Training Grant from the National Institute for Environmental Health Sciences. This grant has been competitively renewed ever since, providing over 20 years of continuous funding. Graduates of MSU's toxicology program number over 200 and can be found in academia, industry, and governmental positions.

MESSAGE FROM THE DIRECTOR

With the passing of yet another year, I am pleased to convey that the Center for Integrative Toxicology's faculty and trainees have once again had an immensely successful year. These accomplishments, which are summarized within this annual report, take many different forms and are in the areas of research, teaching, and professional service. In particular, I would like to take this opportunity to briefly highlight two, our graduate program and the establishment of a new toxicology emphasis.

Since the establishment of a formal coordinating unit for toxicology at MSU in 1978 under the moniker, Center for Environmental Toxicology, graduate education has been a major focus and arguably the lifeblood of our program. Initially under the leadership of Jerry Hook, followed by Lawrence Fischer and during this past decade, by Robert Roth, the graduate program has been nationally and internationally recognized for excellence. In 1989, through the efforts of Larry Fischer, MSU successfully competed for its first NIH Training Grant from the National Institute for Environmental Health Sciences (NIEHS). This NIH grant provides funds for training doctoral and postdoctoral students in environmental toxicology. During this past year, under the leadership of Robert Roth, MSU has once again renewed this NIH Training Grant in environmental toxicology for another five year funding cycle at the end of which will mark a total of 30 years of continuous training grant support. To date the MSU dual degree program in Environmental and Integrative Toxicological Sciences has trained over 225 doctoral students with 59 of these trainees having received support from our NIEHS Training Grant. Over the same period of time, the NIEHS Training Grant has supported an additional 34 postdoctoral trainees. This is genuinely a remarkable achievement from which all of our former and current faculty and trainees can take much pride. Significant credit must be given to Jerry Hook, Larry Fischer and most recently Bob Roth for their excellent stewardship of our training program and the stature it has attained.

As with the NIH Training Grant above, the Center for Integrative Toxicology has continued the tradition of not just serving as a coordinating unit for toxicology but also in providing leadership in expanding current as well as establishing new directions for toxicology research, training and service at MSU. Evidence of this leadership by the Center for Integrative Toxicology and its faculty has included the NIH supported Superfund Center Grant, the US EPA supported Center Grant, Great Lakes Air Center for Integrated Environmental Research (GLACIER), and most recently, the Center for Research on Ingredient Safety (CRIS). Unlike our NIH Superfund Center Grant and US EPA GLACIER Center Grant, both of which are fund by federal agencies, CRIS represents a new model, which is supported by the private sector in partnership with MSU. With the challenges of diminished federal research funding, the CIT has partnered with the Department of Food Safety and Human Nutrition and the University of Michigan's Risk Science Center to establish CRIS. CRIS is composed of three components, research, education and communication. Research and graduate education components of CRIS are primarily being conducted at MSU while the communication arm of CRIS will be led by University of Michigan. CRIS has now recruited sixteen global partnering companies in the areas of food and consumer products. I am very enthusiastic about the establishment of CRIS and the new opportunities it brings for our faculty and trainees.

In summary, the 2013-2014 academic year has been marked once again by many accomplishments and achievements of our faculty and trainees. Last, I would also be remise in not recognizing the very effective and dedicated Center for Integrative Toxicology staff who provide remarkable administrative support to assist our faculty and trainees in attaining their goals.

Norbert E. Kaminski, Ph.D., CIT Director

Student and Faculty HIGHLIGHTS

This year's highlights showcase the accomplishments of not only the center, but also of the faculty and trainees involved in continuing to expand the quality and leadership of Michigan State University in academic toxicology.

CENTER FOR RESEARCH ON INGREDIENT SAFETY JOINS CIT

The CIT is proud to announce the Center for Research on Ingredient Safety (CRIS) has officially been established and will be located at the Food Safety and Toxicology Building on the campus of MSU. Embedded within the Center for Integrative Toxicology and in partnership with the MSU Department of Food Science and Human Nutrition, and the University of Michigan Risk Science Center, the CRIS will be an academic, science-based center, that will serve as a reliable and unbiased source for information, research, training and analysis on the safe use of chemical ingredients in consumer packaged goods including foods, beverages, cosmetics and household consumer products.

"CRIS provides a unique opportunity for both MSU and CIT as it will be the first formal program in food and consumer product ingredient safety of its kind. Specifically, CRIS is a collaboration between academia and private industry encompassing research, graduate training and communication focused on toxicological issues pertaining to food and consumer products," explains Norbert Kaminski, Director for the CIT. "There has been an especially strong need for educational programs in the area of food toxicology and risk assessment. Although CRIS will be broader than just food, nevertheless, it will fulfill a critical need within the discipline of toxicology. With declining resources for science and technology, CRIS represents a new model for MSU that capitalizes on partnerships with the private sector based on common interests, mutual benefits and the willingness for cost sharing for successful collaborations."

CRIS will be modeled after already existing centers of expertise at other academic institutions, which focus on allergen and microbiological safety. It will be governed by an advisory board composed of multiple stakeholders, including academic, industry, nongovernmental organizations and regulatory representatives. CRIS will be supported through the establishment of an endowed chair that will be funded with contributions provided by organizations and individual supporters.

"Partnerships, like the one that creates the Endowed Chair in Ingredient Safety with the Grocery Manufacturers Association and its members, show that safe and secure food and consumer products truly change the world," said Fred Derksen, chairperson of MSU's Department of Food Science and Human Nutrition. "In addition to the support of the endowed chair, MSU is committed to establishing this center whose core is research, educating the next generation of scientists, informing regulators and working with industry."

The center will work to achieve several goals related to the safety and toxicology of ingredients in food, packaging, cosmetics and household care products. The center will expand the opportunity to conduct basic and applied research, develop strategies for evaluating these products, and establish a graduate training program that prepares scientists for a career in assessing the safety and toxicology of ingredients that includes training in risk assessment and U.S. and international regulatory policies. Lastly, the center will strive to inform the public, health professionals, regulators and the scientific community on research matters reflecting the state-of-the-science pertaining to the safety and toxicology of ingredients in food, packaging, cosmetics and household care products.

The endowed chair search will begin immediately and the CIT looks forward to showcasing the progress of the new program.

> CRIS provides a unique opportunity for both MSU and the CIT as it will be the first formal program in food and consumer product ingredient safety of its kind.
>
> - Norbert Kaminski, CIT Director

CIT STUDENTS SHINE AT 53RD SOT MEETING IN PHOENIX, ARIZONA

Students of the MSU Center for Integrative Toxicology were highly honored at this year's 53rd annual Society of Toxicology (SOT) meeting in Phoenix, Arizona with numerous abstracts presented and many special honors awarded.

The SOT annual meeting is the largest toxicology meeting and exhibition in the world, attracting more than 6,500 scientists from industry, academia, and government from various countries around the globe. This year's meeting was held March 24 – 27 at the Phoenix Convention Center in Phoenix, Arizona.

The following students in the MSU-CIT's Environmental and Integrative Toxicological Sciences (EITS) training program received awards or honors:

- **Alexandra Colon-Rodriguez**, training with Dr. Bill Atchison, received a Travel Award from the Hispanic Organization of Toxicologists of the SOT.
- **Natalia Kovalova**, training with Dr. Norbert Kaminski, gave an oral presentation, "*Evaluation of Aryl Hydrocarbon Receptor (AHR) Polymorphism G1661A on TCDD-Mediated Biological Activity in the Human B Cell.*"
- **Nikita Joshi**, training with Dr. James Luyendyk, was a recipient of the 2014 Marcos Rojkind - American Society for Investigative Pathology Trainee Travel Award for her abstract titled, "*Platelet Function Inhibits Liver Injury and Fibrosis Induced by a Bile Duct Toxicant.*" She also received honorable mention for the Carl C. Smith Graduate Student Award from the Mechanisms Specialty Section of the SOT.
- **Ashley Maiuri**, training with Dr. Robert Roth, won the In Vitro and Alternative Methods Specialty Section Student Award for her abstract, "*NSAIDs Synergize with Inflammatroy Cytokines to Kill Hepatocytes: Implications in Idiosyncratic Reactions.*"
- **Kazuhisa Miyakawa**, training with Dr. Robert Roth, won the Roger O. McClellan Student Award for his abstract, "*Contribution of Par-4 and Thrombin to Acetaminophen Hepatotoxicity in Mice.*" The award is given jointly by the Comparative and Veterinary Specialty Section and the Toxicologic and Exploratory Pathology Specialty Section. Miyakawa gave brief talks at receptions for both specialty sections. Miyakawa also won 1st place in the Emil A. Pfitzer Student Award Poster Competition from the Drug Discovery Toxicology Specialty Section and 1st place for the Ronald G. Thurman Student Travel Award from the Mechanism Specialty Section.
- **Joe Zagorski**, training with Dr. Cheryl Rockwell, received the Immunotoxicology Specialty Section's Best Student Presentation Award for his presentation, "*Inhibition of IL-2 production by the Nrf2 Activator tBHQ Correlates with NFkB Activation in Activated Jurkat T cells.*"

Several undergraduate students working in the labs of CIT affiliated faculty members also received recognition at this year's meeting. Four out of the eleven students who received the Pfizer SOT Undergraduate Travel Award were from MSU.

- **Lukas Gora,** working in the lab of Dr. Robert Roth, received the Pfizer SOT Undergraduate Travel Award for his presentation, "*NSAIDs Synergize with Inflammatory Cytokines to Kill Hepatocytes: Implications in Idiosyncratic Reactions.*" Gora is a student at the University of Dusseldorf and is at MSU for the year on a study abroad program.
- **Kelly VanDenBerg,** working in the lab of Dr. Cheryl Rockwell, received the Pfizer SOT Undergraduate Travel Award for her presentation, "*Inhibition of early T cell cytokine production by arsenic occurs independently of Nrf2.*"
- **Ricardo Rivera-Soto**, working in the lab of Dr. John LaPres, received the Pfizer SOT Undergraduate Travel Award for his presentation, "*The Role of HIF1a in Regulating Cobalt-Induced Cytokine Expression in Alveolar Type II Cells.*"

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At left: Lukas Gora, SOT Undergraduate Travel Award winner, discusses his poster presentation.

FIVE CIT FACULTY MEMBERS TAKE HOME TOP HONORS AT SOT

The CIT-affiliated faculty were awarded a number of highly prestigious honors at this year's 53rd annual SOT meeting in Phoenix, Arizona. Five affiliated faculty members were chosen to receive awards this year from the SOT itself and from individual specialty sections within the society as well:

» **Dr. Jay Goodman**, was the 2014 SOT Merit Award recipient. The Merit Award is presented to a member of the Society of Toxicology in recognition of distinguished contributions to toxicology throughout an entire career in areas such as research, teaching, regulatory activities, consulting and service to the Society. As a professor in the Department of Pharmacology and Toxicology, Dr. Goodman is also a Diplomate of the American Board of Toxicology and a Fellow of the Academy of Toxicological Sciences. His research interests are focused on discerning epigenetic mechanisms underlying carcinogenesis and other chemical-induced toxicities, and testing the hypothesis that the capacity to maintain the normal epigenetic status is related inversely to susceptibility to carcinogenesis. Extensively involved in the training of the next generation of toxicologists, scientists and physicians, Dr. Goodman has served as a mentor and advisor for many Ph.D. students and postdoctoral fellows.

» **Dr. William Atchison**, received the 2014 SOT Undergraduate Educator Award. The Undergraduate Educator Award, sponsored by the SOT Endowment Fund and first presented at the SOT 50th Anniversary Annual Meeting, is presented to an SOT member who is distinguished by outstanding contributions to the teaching of undergraduate students in toxicology and toxicology-related areas, and whose efforts support SOT's strategic efforts to "Build for the Future of Toxicology." Dr. Atchison currently serves as the Associate Dean for Research and Graduate

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Above: CIT-affiliated faculty award winners, Dr. William Atchison, Dr. Patricia Ganey, and Dr. Jay Goodman.

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» **Kia Z. Perez-Vale**, working in the lab of Dr. William Atchison, received the Pfizer SOT Undergraduate Travel Award.

Also from Dr. Atchison's lab, **Zuleirys Santana** received Honorable Mention for the Perry Gehring Award, and **Crystal Colon** and **Celizbets Colon** received student travel awards.

Barbara J. Avalos Cavero, working in the lab of Dr. Norbert Kaminski, received a travel award for her presentation, "*Suppression by 2,3,7,8-Tetrachlorodibenzo-p-Dioxin (TCDD) of IL-2 plus IL-21-Induced B Cell Activation*."

At left: Kazuhisa Miyakawa accepting his Ronald G. Thurman 1st place Student Travel Award from Terrance J. Kavanagh of the Mechanism Specialty Section.

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Studies in the College of Veterinary Medicine. Dr. Atchison's passion is to provide opportunities for undergraduate education in the biomedical sciences coupled with research experiences aimed at under-represented minority students. In collaboration with the University of Puerto Rico, he developed and established an NIH, NINDS-funded R25-Diversity Education grant that provides research experiences for Hispanic undergraduates, since 2005. Dr. Atchison makes annual visits to campuses of the University of Puerto Rico to recruit/interview students for the program. Many of these students have gone on to participate in SOT's Annual Meeting by presenting their research. To date, 40 undergraduate students have received training through this program.

» **Dr. Patricia Ganey**, professor in the Department of Pharmacology and Toxicology, received one of two Colgate Palmolive Grants for Alternative Research for her project, "*Prediction of Idiosyncratic, Drug-induced Liver Injury from Drug-Cytokine Interaction In Vitro*." The Colgate-Palmolive Grant for Alternative Research identifies and supports efforts that promote, develop, refine, or validate scientifically acceptable animal alternative methods to facilitate the safety assessment of new chemicals and formulations. Dr. Ganey was awarded a plaque and $40,000 in grant funds to facilitate research on her project.

» **Dr. Norbert Kaminski**, professor in the Department of Pharmacology and Toxicology and Director of the CIT, received the Senior Investigator Award from the Immunotoxicology Specialty Section of the SOT. The award is given to those whose body of work represents an outstanding career in immunotoxicology.

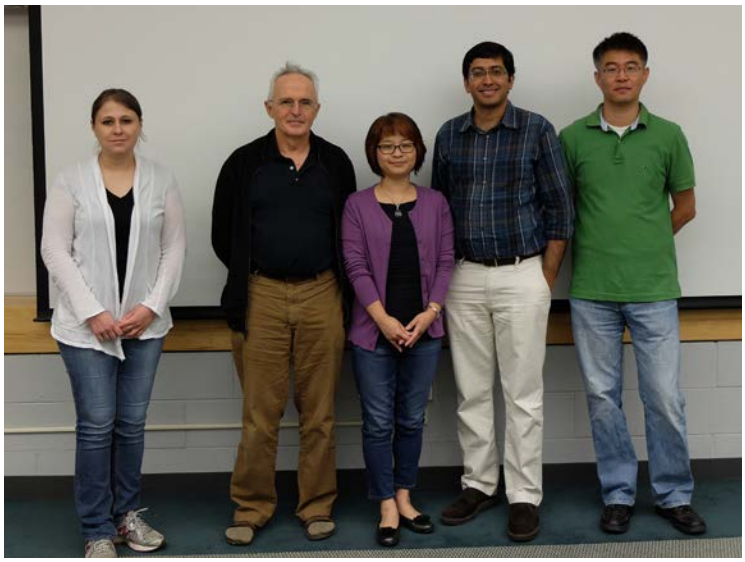
» **Dr. Cheryl Rockwell**, professor in the Department of Pharmacology and Toxicology, received the Oustanding Young Immunotoxicologist Award and was named a new Junior Councilor by the Imuntoxicology Specialty Section of the SOT. The Oustanding Young Immunotoxicologist Award is given to those whose work has made significant contributions to the field of Immunotoxicology and have had an impact on regulatory issues.

The CIT is very proud to be affiliated with these inspring professors of toxicology.

Above left: Dr. Cheryl Rockwell receiving her award for Outstanding Young Immunotoxicologist.
Bottom left: Dr. Norbert Kaminski receiving the gavel to take the reins as the president of the SOT for the coming year.
Above right: Dr. Jay Goodman accepting his 2014 SOT Merit Award.

INTRODUCTION TO PBPK MODELING SHORT COURSE A SUCCESS

The Center for Integrative Toxicology hosted an intensive 3 day short course (May 20-22, 2014) titled "Introduction to Physiologically Based Pharmacokinetic (PBPK) Modeling". The course was attended by over 20 participants including EITS students and industry and government toxicologists.



During the short course, participants learned the principles of physiologically based pharmacokinetic (PBPK modeling and were introduced to the application of this technique in chemical health risk assessment and drug development. At the conclusion of the course participants were able to:

» Understand the fundamental concepts underlying PBPK modeling
» Describe the absorption, distribution, metabolism, and elimination of chemicals using mass balance differential equations
» Build PBPK models to simulate tissue dosimetry using Berkely Madonna®
» Appreciate the application of PBPK models in human health risk/safety assessment and drug development.

The course comprised lectures and hands-on computer simulation exercises.

The CIT offered this course through the Research Translation Core within its NIH Superfund Research Program grant. The course instructors (at left) were Qiang Zhang, Sudin Bhattacharya, Miyoung Yoon, and Alina Efremenko from The Hamner Institutes for Health Sciences, and Rory B. Conolly from the US EPA.

EITS PROGRAM 2013-2014

The Environmental and Integrative Toxicological Sciences (EITS) graduate program continues to be one of the premier toxicology training programs in the U.S. This MSU program administered by the CIT is a "dual major" format that emphasizes excellent basic science training from one of our 16 partnering graduate programs coupled with didactic and research training in toxicology by MSU CIT-affiliated faculty. Currently, 38 doctoral students are enrolled in the EITS program, distributed among several of our partnering PhD programs. Thirty-five of these students are in the Biomedical Track and 3 in the Environmental Track. Nine students joined the EITS program since Fall of 2013. Many of our current students have received awards at the 2014 Annual Meeting of the Society of Toxicology (SOT) or from other organizations. Our students continue to demonstrate good citizenship with service on Society committees at the regional and national levels as well as within MSU. Students who graduated in the past year are typically in postdoctoral positions at various academic institutions in the U.S. and other countries.

A survey of alumni conducted late in 2013 affirmed that our graduates appreciate their MSU training and continue to be productive contributors to the discipline. An External Review Committee met during 2013 to evaluate the CIT and the EITS program and concluded that the EITS program continues to excel in graduate training. Importantly, several recent faculty hires have been added to the roster of CIT-affiliated training faculty; these faculty are already training EITS students, thereby helping to ensure a bright future for the program.

The 2013-2014 academic year marked the 25th consecutive year that the program has enjoyed training grant support from the National Institute for Environmental Health Sciences (NIEHS). This grant provides stipend support for 6 predoctoral and 3 postdoctoral fellows. Generous supplemental funding from the Dean Klomparens of the Graduate School provides additional support for stipends and for fellowships that enable students to travel to scientific meetings to present the results of their research. A competing renewal of the NIEHS training grant was submitted during 2013, and we learned recently that it was reviewed positively and will receive funding for the next 5 years. Thus, with a strong, research-intensive CIT faculty, leadership by Dr. Roth and support from the MSU administration, the EITS training program continues to thrive.

RECENT EITS GRADUATES

Aaron Bradford
Biochemisty and Molecular Biology
Mentor, William Atchison

Aaron successfully defended his dissertation, "Involvement of the GABAA Receptor in Calcium-Dependent Toxicity of Methylmercury in Developing and Aged Cerebellum," in August of 2013 and earned his Ph.D. degree in Biochemistry and Molecular Biology and Environmental Toxicology.

He is currently working as a postdoctoral research contractor with Dr. Patrick McNutt in the cellular and molecular biology branch of the US Army Medical Research Institute for Chemical Defense (USAMRICD). The laboratory he works in has developed a stem cell-derived neuron model for testing toxicants and therapeutics. He is developing approaches to test neuronal network activity and toxicity in this model. These approaches include further development of live cell fluorescent microscopy techniques similar to those that went into his dissertation, development of gene expression and immunoassays, and novel assays for toxicant degradation. He is currently on a fellowship through the Oak Ridge Institute for Science and Education (ORISE) and is also applying for additional project funding.

In five years, he hopes to be continuing to study neurotoxicology and at a stage where he is able to attract his own funding regularly and start a lab of his own.

He is looking forward to the arrival of his daughter this May.

Kevin Beggs
Pharmacology and Toxicology
Mentor, Robert Roth

Kevin successfully defended his dissertation, "Mechanisms of Hepatocellular Apoptosis Induced by Trovafloxacin-Tumor Necrosis Factor-Alpha Interaction: An In Vitro Model of Idiosyncratic Drug-Induced Liver Injury," in December of 2013 and earned his Ph.D. degree in Pharmacolgy and Toxicolgy and EnvironmentalToxicology.

He is currently applying for post-doctoral postions and in five years, hopes to be back in Michigan doing research.

Weimin Chen
Microbiology and Molecular Genetics
Mentor, Norbert Kaminski

Weimin successfully defended her dissertation, "*Modulation of HIV gp120 Antigen-Specific Immune Responses by Delta9-Tetrahydrocannabinol and Cannabinoid Receptors 1 and 2 In Vitro and In Vivo*" in February of 2014 and earned her Ph.D. degree in Microbiology and Molecular Genetics and Environmental Toxicology.

Weimin was a predoctoral trainee in the lab of Dr. Norbert Kaminski for several months following her graduation.

In August of 2014 she began at her current position at Bristol-Meyers Squib as a Research Investigator in Immunotoxicology in the Department of Drug Safety Evaluation. She will serve as study director for nonclinical toxicity studies and as drug safety representative for immunomodulatory drug candidates. Her responsibilities will include supporting the development and validation of in vivo / ex vivo / in intro assays for pharmacodynamic assesment and the investigation of toxicities and immunogenicity assays, and to ensure compliance with all standard operating procedures that govern immunotoxicology activities. In addition, she will also play a role in investigating the mechanisms of drug-induced toxicities, particularly those associated with the immune system.

In five years, she hopes to continue doing research as a scientist in the field of immunotoxicology.

Daven Jackson
Pathobiology and Diagnostic Investigation
Mentor, James Wagner

Daven successfully defended her dissertation, "*Attenuation of Airway Hyperreactivity by Gram- Negative Lipopolysaccharide in a Murine Model of Asthma*," in March of 2014 and earned her Ph.D. degree in Pathobiology and Diagnostic Investigation and Environmental Toxicology.

Currently, Daven is preparing to take the anatomic veterinary pathology board exam in September. She is also a postdoctoral research fellow with Dr. Jack Harkema and Dr. Ning Li where she is working on the GLACIER project which examines the effects of short term exposure to air pollution in the Great Lakes region on chronic cardiovascular and metabolic diseases in susceptible populations.

In five years, she hopes to be a veterinary pathologist in industry or government.

Kate O'Brien
Pharmacology and Toxicology
Mentor, Bryan Copple

Kate successfully defended her dissertation, "Elucidation of the Mechanisms of Interaction Between Bile Acids and the Interleukin-23/Interleukin-17 Axis during Cholestasis," in January of 2014 and earned her Ph.D. degree in Pharmacology and Toxicology and Environmental Toxicolgy.

Kate began her doctoral education at the University of Kansas Medical Center in August 2009. She joined Dr. Bryan Copple's lab in May 2010 in the Department of Pharmacology, Toxicology and Therapeutics at KUMC. She transferred to Michigan State with Dr. Copple in August 2011 because she wanted to continue her mentorship with Dr. Copple and because of the excellent reputation of the Department of Pharmacology and Toxicology at MSU.

She is currently applying for post-doctoral postions and hopes to one day be a researcher in the military or EPA.

Ashwini Phadnis-Moghe
Genetics
Mentor, Norbert Kaminski

Ashwini successfully defended her dissertation, "*Mechanisms Underlying 2,3,7,8-tetrachlorodibenzo-p-dioxin-Mediated Suppression of B Cell Activation and Differentiation*," in February of 2014 and earned her Ph.D. degree in Genetics and Environmental Toxicolgy.

Ashwini is currently working as a postdoctoral research fellow in the lab or Dr. Norbert Kaminski. Her postdoctoral project involves the characterization of a triple knockout rat model of inflammation. She will be investigating the effects of TCDD on liver tumors, liver inflammation and on the immune system using this model. This project will be conducted in collaboration with the Dow Chemical Co. in Midland, MI.

In five years, she hopes to join industry as an immunotoxicologist. Although she equally enjoys doing academic research and the process of grant writing, she is inclined towards a position in industry given the dynamism and diversity of projects.

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Kyle Poulsen
Pharmacology and Toxicology
Mentor, Robert Roth

Kyle successfully defended his dissertation, "*Trovafloxacin Potentiates Lipopolysaccharide-Induced Tumor Necrosis Factor-Alpha in a Macrophage Cell-Line: Mechanistic Insights to Idiosyncratic Liability*," in December of 2013 and earned his Ph.D. degree in Pharmacology and Toxicology and Environmental Toxicolgy.

Kyle has started a postdoctoral research fellowship in the laboratory of Dr. Laura Nagy at the Lerner Research Institute within The Cleveland Clinic in Cleveland, OH. He will be investigating various genetic and environmental factors that could contribute to the development of alcoholic liver disease, including the role of the innate immune system in the incidence and progression of alcoholic liver disease.

In the next five years, Kyle plans to actively publish his findings and apply for research support in the form of federal grants to transition from a postdoctoral researcher to a young, independent investigator. From there, he hopes to secure a university-level position as a scientist and Assistant Professor, begin his own laboratory and train graduate students to become the next generations of scientists.

> I am certain that my participation in the EITS program aided me in securing my new position and was pivotal in preparing me to be a scientist. The travel support throughout my years at MSU allowed me to attend national meetings and interact with many. The required additional curriculum significantly increased my knowledge of research science and reinforced my desire to work in science for my career.
>
> - Kyle Poulsen

Tyrell Simkins
Neuroscience
Mentor, John Goudreau

Tyrell successfully defended his dissertation, "The Function of Sympathetic Innervation in the Spleen and the Role of Endogenous CB1/CB2 Receptor Signaling," in January of 2014 and earned his Ph.D. degree in Neuroscience and Environmental Toxicolgy.

As part of the D.O.-Ph.D. Program, Tyrell is working on finishing his D.O. degree by completing his clinical clerkships at Detroit Medical Center in Detroit, MI. He hopes to graduate in May 2015.

After medical school, he plans to specialize in Neurology. In five years he hopes to be practicing as a physician and participating in a research program focused on neuroinflammation and neuoinflammatory disorders.

JOHN BUCHWEITZ JOINS CIT FACULTY

The CIT is proud to announce John P. Buchweitz, Assistant Professor and Toxicology Section Chief for the Diagnostic Center for Population and Animal Health in the Department of Pathobiology and Diagnostic Investigation, has joined the CIT-affiliated faculty ranks. Becoming a member of the CIT has come full circle for Buchweitz, who was once an Environmental and Integrative Toxicological Sciences (EITS) student himself.

Dr. Buchweitz received his B.S. in Biochemistry in 1992, his M.S. in Animal Science, specializing in Environmental Toxicology in 2001, and his Ph.D. in Pharmacology and Toxicology and Environmental Toxicology in 2007, all degrees completed at MSU.

As a former EITS student, we asked Dr. Buchweitz about his learning experience with the program:

1. Who were your major professors during your time in the EITS program?

"During my Master's training I had the pleasure of working with Drs. Steve Bursian, Robert Roth, and Patricia Ganey on the development of an animal model for drug-induced idiosyncratic reactions. This interdepartmental collaborative approach was continued into my doctoral training when I had the distinct privilege of working with Drs. Norbert Kaminski and Jack Harkema on characterizing immune and airway epithelial cell responses to tetrahydrocannabinol and influenza challenge in cannabinoid receptor-null mice. The multi-disciplinary expertise provided by my mentors throughout my training afforded me with a unique and rewarding graduate experience."

2. How did your time as an EITS student help shape your career today?

"As a toxicologist for the MSU Diagnostic Center for Population and Animal Health, I am asked to interpret a wide variety of tests for toxins and toxicants with potential relationship to adverse effects in animals. My clients come from varied backgrounds and include veterinarians, regulatory officials, and academic researchers. Accordingly, the types of samples received for analysis are highly variable in nature and present many unique challenges to my laboratory section.

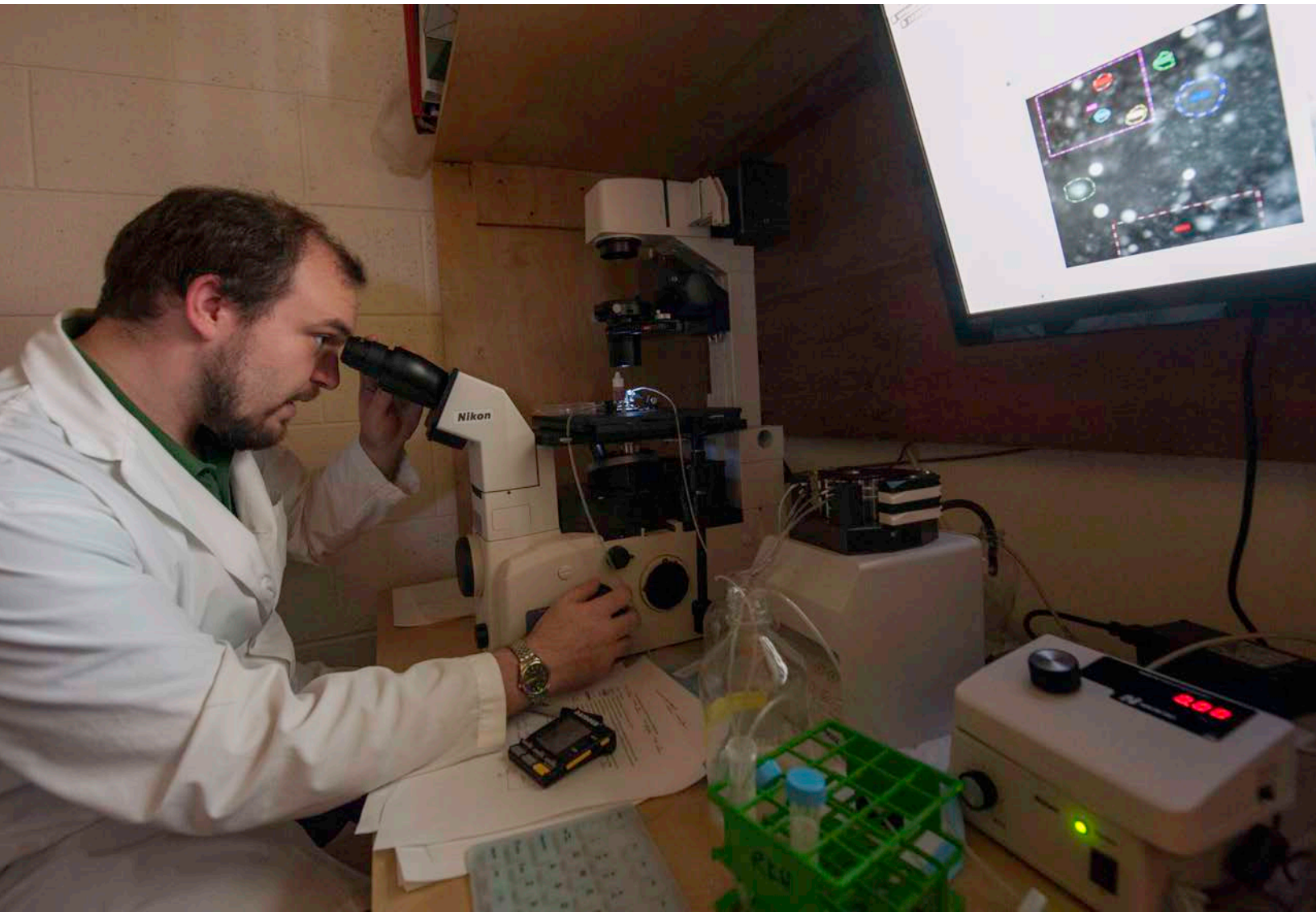
My training as an EITS student was multi-disciplinary and collaborative. This approach helped provide me with the necessary skills to more effectively communicate with audiences from a broad array of backgrounds. It also helped to instill in me an appreciation for reaching across disciplines to establish partnerships that solve problems from more than one vantage point. My clients are the direct beneficiaries of these collaborations.

The foundation of my training was broad-based and challenging. It provided me with the opportunity to explore many different yet thematically related courses that helped shape a more global vision of toxicology and its importance in human, animal, and environmental health. From courses in Environmental Law to Advanced General Pathology, I developed an awareness of the interconnectivity of disciplines and a subtle understanding of the multitude of challenges that exist within each.

My training humbled me to be open-minded to the challenges that I am faced with and to seek guidance where it is needed. The curriculum and mentoring I received were invaluable as a student and they continue to play a pivotal role in my career today. Each day I seek to learn something new and to reach out and include others in that discovery."

RESEARCH INTERESTS

Dr. Buchweitz is interested in the analytical measurement of toxic chemicals in biological and environmental matrices of veterinary concern. His primary research interest is in the application of analytical techniques to animal death investigations to discern intentional from unintentional poisoning incidents. An additional research interest is in the area of dried blood spot analysis. Veterinarians and wildlife biologists have demonstrated a need to assess environmental contaminants, such as heavy metals, rare earth elements, and persistent organic pollutants in the blood of animal species too small for routine blood tests. The extension of elemental and organic compound detection to dried blood spots may prove to be a valuable tool in this endeavor.



Faculty PUBLICATIONS

During the 2013-2014 academic year, CIT affiliated faculty published more than 200 peer-reviewed articles. As a result, the CIT, and MSU research, has been highly visible in prominent peer-reviewed literature.

Amalfitano, Andrea

Aldhamen YA, Seregin SS, Aylsworth CF, Godbehere S, Amalfitano A (2014). Manipulation of EAT-2 expression promotes induction of multiple beneficial regulatory and effector functions of the human innate immune system as a novel immunomodulatory strategy. Int Immunol. 26(5):291-303. PubMed PMID: 24374770.

Zervoudi E, Saridakis E, Birtley JR, Seregin SS, Reeves E, Kokkala P, Aldhamen YA, Amalfitano A, Mavridis IM, James E, Georgiadis D, Stratikos E (2013). Rationally designed inhibitor targeting antigen-trimming aminopeptidases enhances antigen presentation and cytotoxic T-cell responses. Proc Natl Acad Sci U S A. 110(49):19890-5. PubMed PMID: 24248368.

Kovalenko PL, Yuan L, Sun K, Kunovska L, Seregin S, Amalfitano A, Basson MD (2013). Regulation of epithelial differentiation in rat intestine by intraluminal delivery of an adenoviral vector or silencing RNA coding for Schlafen 3. PLoS One. 8(11):e79745. PubMed PMID: 24244554.

Seregin SS, Rastall DP, Evnouchidou I, Aylsworth CF, Quiroga D, Kamal RP, Godbehere-Roosa S, Blum CF, York IA, Stratikos E, Amalfitano A (2013). Endoplasmic reticulum aminopeptidase-1 alleles associated with increased risk of ankylosing spondylitis reduce HLA-B27 mediated presentation of multiple antigens. Autoimmunity. 46(8):497-508. PubMed PMID: 24028501.

Aldhamen YA, Seregin SS, Kousa YA, Rastall DP, Appledorn DM, Godbehere S, Schutte BC, Amalfitano A (2013). Improved cytotoxic T-lymphocyte immune responses to a tumor antigen by vaccines co-expressing the SLAM-associated adaptor EAT-2. Cancer Gene Ther. 20(10):564-75. PubMed PMID: 23949283.

Morse MA, Chaudhry A, Gabitzsch ES, Hobeika AC, Osada T, Clay TM, Amalfitano A, Burnett BK, Devi GR, Hsu DS, Xu Y, Balcaitis S, Dua R, Nguyen S, Balint JP Jr, Jones FR, Lyerly HK (2013). Novel adenoviral vector induces T-cell responses despite anti-adenoviral neutralizing antibodies in colorectal cancer patients. Cancer Immunol Immunother. 62(8):1293-301. PubMed PMID: 23624851.

Andrechek, Eran

Hollern DP, Honeysett J, Cardiff RD, Andrechek ER (2014). The E2F transcription factors regulate tumor development and metastasis in a mouse model of metastatic breast cancer. Mol Cell Biol. pii: MCB.00737-14. PubMed PMID: 24934442.

Andrechek ER (2013). HER2/Neu tumorigenesis and metastasis is regulated by E2F activator transcription factors. Oncogene. PubMed PMID: 24362522.

Hollern DP, Andrechek ER (2014). A genomic analysis of mouse models of breast cancer reveals molecular features of mouse models and relationships to human breast cancer. Breast Cancer Res. 16(3):R59. PMID: 25069779.

Chen F, Li A, Gao S, Hollern D, Williams M, Liu F, VanSickle EA, Andrechek E, Zhang C, Yang C, Luo R, Xiao H (2014). Tip30 controls differentiation of murine mammary luminal progenitor to estrogen receptor-positive luminal cell through regulating FoxA1 expression. Cell Death Dis. 5:e1242. PMID: 24853420.

Atchison, William D.

Hajela RK, Huntoon KM, Atchison WD (2014). Lambert-eaton syndrome antibodies target multiple subunits of voltage-gated Ca(2+) channels. Muscle Nerve. PubMed PMID: 24862203.

Boyd, Stephen A.

Zhang Y, Boyd SA, Teppen BJ, Tiedje JM, Li H (2014). Role of tetracycline speciation in the bioavailability to Escherichia coli for uptake and expression of antibiotic resistance. Environ Sci Technol. 48(9):4893-900. PubMed PMID: 24717018.

Hinklin RJ, Boyd SA, Chicarelli MJ, Condroski KR, DeWolf WE Jr, Lee PA, Lee W, Singh A, Thomas L, Voegtli WC, Williams L, Aicher TD (2013). Identification of a new class of glucokinase activators through structure-based design. J Med Chem. 56(19):7669-78. PubMed PMID: 24015910.

Hasui T, Ohra T, Ohyabu N, Asano K, Matsui H, Mizukami A, Habuka N, Sogabe S, Endo S, Siedem CS, Tang TP, Gauthier C, De Meese LA, Boyd SA, Fukumoto S (2013). Design, synthesis, and structure-activity relationships of dihydrofuran-2-one and dihydropyrrol-2-one derivatives as novel benzoxazin-3-one-based mineralocorticoid receptor antagonists. Bioorg Med Chem. 21(19):5983-94. PubMed PMID: 23958516.

Buchweitz, John P.

Williams LJ, Buchweitz JP, Rissi DR (2014). Pathology in practice. Severe thymic hemorrhage. J Am Vet Med Assoc. 244(8):905-7. PubMed PMID: 24697765.

Perrault JR, Buchweitz JP, Lehner AF (2014). Essential, trace and toxic element concentrations in the liver of the world's largest bony fish, the ocean sunfish (Mola mola). Mar Pollut Bull. 79(1-2):348-53. PubMed PMID: 24341944.

Teamwork

Buchweitz JP, Bokhart M, Johnson M, Lehner A (2013). Determination of methomyl in the stomach contents of baited wildlife by gas chromatography-mass spectrometry. J Vet Diagn Invest. 25(6):744-9. PubMed PMID: 24105381.

Langlois DK, Lehner AF, Buchweitz JP, Ross DE, Johnson MB, Kruger JM, Bailie MB, Hauptman JG, Schall WD (2013). Pharmacokinetics and relative bioavailability of D-penicillamine in fasted and nonfasted dogs. J Vet Intern Med. 27(5):1071-6. PubMed PMID: 23875792.

Bursian, Steven J.

Farmahin R, Jones SP, Crump D, Hahn ME, Giesy JP, Zwiernik MJ, Bursian SJ, Kennedy SW (2014). Species-specific relative AHR1 binding affinities of 2,3,4,7,8-pentachlorodibenzofuran explain avian species differences in its relative potency. Comp Biochem Physiol C Toxicol Pharmacol. 161:21-5. PubMed PMID: 24434118.

Copple, Bryan L.

Mochizuki A, Pace A, Rockwell CE, Roth KJ, Chow A, O'Brien KM, Albee R, Kelly K, Towery K, Luyendyk JP, Copple BL (2014). Hepatic stellate cells orchestrate clearance of necrotic cells in a hypoxia-inducible factor-1α-dependent manner by modulating macrophage phenotype in mice. J Immunol. 192(8):3847-57. PubMed PMID: 24639359.

Yang M, Ramachandran A, Yan HM, Woolbright BL, Copple BL, Fickert P, Trauner M, Jaeschke H (2014). Osteopontin is an initial mediator of inflammation and liver injury during obstructive cholestasis after bile duct ligation in mice. Toxicol Lett. 224(2):186-95. PubMed PMID: 24188933.

O'Brien KM, Allen KM, Rockwell CE, Towery K, Luyendyk JP, Copple BL (2013). IL-17A synergistically enhances bile acid-induced inflammation during obstructive cholestasis. Am J Pathol. 183(5):1498-507. PubMed PMID: 24012680.

Ewart, Susan L.

Ziyab AH, Karmaus W, Zhang H, Holloway JW, Steck SE, Ewart SL, Arshad SH (2014). Association of filaggrin variants with asthma, and rhinitis: Is eczema or allergic sensitization status an effect modified? International Archives of Allergy and Immunology. 164:308-318.

Alexander M, Karmaus W, Holloway J, Zhang H, Roberts G, Kurukulaaratchy RJ, Arshad SH, Ewart S (2013). Effect of GSTM2-5 polymorphisms in relation to tobacco smoke exposures on lung function growth: a birth cohort study. BMC Pulmonary Medicine. 13:56.

Andersson LS, Wilbe M, Viluma A, Cothran G, Ekesten B, Ewart S, Lindgren G (2013). Equine multiple congenital ocular anomalies and silver coat colour result from the pleiotrophic effects of mutant PMEL. PLoS One. 8(9)e75639.

Patil V, Holloway J, Zhang H, Soto-Ramirez N, Ewart S, Arshad SH, Karmaus W (2013). Interaction of prenatal maternal smoking, interleukin 13 genetic variants and DNA methylation influencing airflow and airway reactivity. Clinical Epigenetics. 5(1)22.

Kurukulaaratchy RJ, Zhang H, Raza A, Patil V, Karmaus W, Ewart S, Arshad SH (2014). The diversity of young adult wheeze; a cluster analysis in a longitudinal birth cohort. Clin Exp Allergy. 44(5):724-35.

Zhang H, Tong X, Holloway JW, Rezwan FI, Lockett GA, Patil V, Ray M, Everson TM, Soto-Ramirez N, Arshad SH, Ewart S, Karmaus W (2014). The interplay of DNA methylation over time with genetic variants in Th2 pathway on asthma risk and temporal asthma transition. Clinical Epigenetics. 6(1):8.

Ziyab A, Karmaus W, Zhang H, Holloway J, Steck S, Ewart S, Arshad SH (2014). Allergic sensitization and filaggrin variants predispose to the comorbidity of eczema, asthma and rhinitis: Results from the Isle of Wight birth cohort. Clin Exper Allergy. 44: 1170-1178.

Ganey, Patricia E.

Poulsen KL, Olivero-Verbel J, Beggs KM, Ganey PE, Roth RA (2014). Trovafloxacin Enhances Lipopolysaccharide-Stimulated Production of Tumor Necrosis Factor-α by Macrophages: Role of the DNA Damage Response. J Pharmacol Exp Ther. 350(1):164-70. PubMed PMID: 24817034.

Poulsen KL, Albee RP, Ganey PE, Roth RA (2014). Trovafloxacin potentiation of lipopolysaccharide-induced tumor necrosis factor release from RAW 264.7 cells requires extracellular signal-regulated kinase and c-Jun N-Terminal Kinase. J Pharmacol Exp Ther. 349(2):185-91. PubMed PMID: 24525298.

Beggs KM, Fullerton AM, Miyakawa K, Ganey PE, Roth RA (2014). Molecular mechanisms of hepatocellular apoptosis induced by trovafloxacin-tumor necrosis factor-alpha interaction. Toxicol Sci. 137(1):91-101. PubMed PMID: 24097668.

Fullerton AM, Roth RA, Ganey PE (2013). Pretreatment with TCDD exacerbates liver injury from Concanavalin A: critical role for NK cells. Toxicol Sci. 136(1):72-85. PubMed PMID: 23970800.

Lu J, Roth RA, Malle E, Ganey PE (2013). Roles of the hemostatic system and neutrophils in liver injury from co-exposure to amiodarone and lipopolysaccharide. Toxicol Sci. 136(1):51-62. PubMed PMID: 23912913.

Goodman, Jay I.

Currie RA, Peffer RC, Goetz AK, Omiecinski CJ, Goodman JI (2014). Phenobarbital and propiconazole toxicogenomic profiles in mice show major similarities consistent with the key role that constitutive androstane receptor (CAR) activation plays in their mode of action. Toxicology. 321:80-8. PubMed PMID: 24675475.

Luisier R, Unterberger EB, Goodman JI, Schwarz M, Moggs J, Terranova R, van Nimwegen E (2014). Computational modeling identifies key gene regulatory interactions underlying phenobarbital-mediated tumor promotion. Nucleic Acids Res. 42(7):4180-95. PubMed PMID: 24464994.

Elcombe CR, Peffer RC, Wolf DC, Bailey J, Bars R, Bell D, Cattley RC, Ferguson SS, Geter D, Goetz A, Goodman JI, Hester S, Jacobs A, Omiecinski CJ, Schoeny R, Xie W, Lake BG (2014). Mode of action and human relevance analysis for nuclear receptor-mediated liver toxicity: A case study with phenobarbital as a model constitutive androstane receptor (CAR) activator. Crit Rev Toxicol. 44(1):64-82. PubMed PMID: 24180433.

Goudreau, John L.

Simkins T, Crawford RB, Goudreau JL, Lookingland KJ, Kaplan BL (2014). Enhanced Humoral Immunity in Mice Lacking CB1 and CB2 Receptors (Cnr1 (-/-) /Cnr2 (-/-) Mice) is not Due to Increased Splenic Noradrenergic Neuronal Activity. J Neuroimmune Pharmacol. PubMed PMID: 24870806.

Parkinson Study Group SURE-PD Investigators, Schwarzschild MA, Ascherio A, Beal MF, Cudkowicz ME, Curhan GC, Hare JM, Hooper DC, Kieburtz KD, Macklin EA, Oakes D, Rudolph A, Shoulson I, Tennis MK, Espay AJ, Gartner M, Hung A, Bwala G, Lenehan R, Encarnacion E, Ainslie M, Castillo R, Togasaki D, Barles G, Friedman JH, Niles L, Carter JH, Murray M, Goetz CG, Jaglin J, Ahmed A, Russell DS, Cotto C, Goudreau JL, Russell D, Parashos SA, Ede P, Saint-Hilaire MH, Thomas CA, James R, Stacy MA, Johnson J, Gauger L, Antonelle de Marcaida J, Thurlow S, Isaacson SH, Carvajal L, Rao J, Cook M, Hope-Porche C, McClurg L, Grasso DL, Logan R, Orme C, Ross T, Brocht AF, Constantinescu R, Sharma S, Venuto C, Weber J, Eaton K (2014). Inosine to increase serum and cerebrospinal fluid urate in Parkinson disease: a randomized clinical trial. JAMA Neurol. 71(2):141-50. PubMed PMID: 24366103.

Parkinson Study Group (2013). Phase II safety, tolerability, and dose selection study of isradipine as a potential disease-modifying intervention in early Parkinson's disease (STEADY-PD). Mov Disord. 28(13):1823-31. PubMed PMID: 24123224.

Benskey M, Lee KY, Parikh K, Lookingland KJ, Goudreau JL (2013). Sustained resistance to acute MPTP toxicity by hypothalamic dopamine neurons following chronic neurotoxicant exposure is associated with sustained up-regulation of parkin protein. Neurotoxicology. 37:144-53. PubMed PMID: 23643664.

Gulbransen, Brian D.

McClain JL, Grubišić V, Fried D, Gomez-Suarez RA, Leinninger GM, Sévigny J, Parpura V, Gulbransen BD (2014). Ca2+ responses in enteric glia are mediated by connexin-43 hemichannels and modulate colonic transit in mice. Gastroenterology. 146(2):497-507. e1. PubMed PMID: 24211490.

Gulbransen BD (2014). Enteric Glia. Colloquium Series on Neuroglia in Biology and Medicine: From Physiology to Disease. Vol. 1, No. 2, pages 1-70. A. Verkhratsky, V. Parpura (eds.). Morgan & Claypool.

Gulbransen BD (2014). Glial Cells and Interstitial Cells of Cajal. Reference Module in Biomedical Sciences. Elsevier. Michael Caplan (ed.).

Brown I and Gulbransen BD (2014). "Enteric glial cells: Implications in gut pathology", in Pathological potential of neuroglia. Ch. 21, pages 493-518. V. Parpura, A. Verkhratsky (eds.).

Harkema, Jack R.

Liu C, Bai Y, Xu X, Sun L, Wang A, Wang TY, Maurya SK, Periasamy M, Morishita M, Harkema J, Ying Z, Sun Q, Rajagopalan S (2014). Exaggerated effects of particulate matter air pollution in genetic type II diabetes mellitus. Part Fibre Toxicol. 11(1):27. PubMed PMID: 24886175.

Wagner JG, Kamal AS, Morishita M, Dvonch JT, Harkema JR, Rohr AC (2014). PM2.5-induced cardiovascular dysregulation in rats is associated with elemental carbon and temperature-resolved carbon subfractions. Part Fibre Toxicol. 11(1):25. PubMed PMID: 24885999.

Morishita M, Bard RL, Kaciroti N, Fitzner CA, Dvonch T, Harkema JR, Rajagopalan S,

Brook RD (2014). Exploration of the composition and sources of urban fine particulate matter associated with same-day cardiovascular health effects in Dearborn, Michigan. J Expo Sci Environ Epidemiol. PubMed PMID: 24866265.

Brook RD, Bard RL, Morishita M, Dvonch JT, Wang L, Yang HY, Spino C, Mukherjee B, Kaplan MJ, Yalavarthi S, Oral EA, Ajluni N, Sun Q, Brook JR, Harkema J, Rajagopalan S (2014). Hemodynamic, autonomic, and vascular effects of exposure to coarse particulate matter air pollution from a rural location. Environ Health Perspect. 122(6):624-30. PubMed PMID: 24618231.

Maiseyeu A, Yang HY, Ramanathan G, Yin F, Bard RL, Morishita M, Dvonch JT, Wang L, Spino C, Mukherjee B, Badgeley MA, Barajas-Espinosa A, Sun Q, Harkema J, Rajagopalan S, Araujo JA, Brook RD (2014). No effect of acute exposure to coarse particulate matter air pollution in a rural location on high-density lipoprotein function. Inhal Toxicol. 26(1):23-9. PubMed PMID: 24417404.

Wagner JG, Birmingham NP, Jackson-Humbles D, Jiang Q, Harkema JR, Peden DB (2014). Supplementation with γ-tocopherol attenuates endotoxin-induced airway neutrophil and mucous cell responses in rats. Free Radic Biol Med. 68:101-9. PubMed PMID: 24333275.

Ying Z, Xu X, Bai Y, Zhong J, Chen M, Liang Y, Zhao J, Liu D, Morishita M, Sun Q, Spino C, Brook RD, Harkema JR, Rajagopalan S (2014). Long-term exposure to concentrated ambient PM2.5 increases mouse blood pressure through abnormal activation of the sympathetic nervous system: a role for hypothalamic inflammation. Environ Health Perspect. 122(1):79-86. PubMed PMID: 24240275.

Proper SP, Saini Y, Greenwood KK, Bramble LA, Downing NJ, Harkema JR, Lapres JJ (2014). Loss of hypoxia-inducible factor 2 alpha in the lung alveolar epithelium of mice leads to enhanced eosinophilic inflammation in cobalt-induced lung injury. Toxicol Sci. 137(2):447-57. PubMed PMID: 24218148.

Wagner JG, Allen K, Yang HY, Nan B, Morishita M, Mukherjee B, Dvonch JT, Spino C, Fink GD, Rajagopalan S, Sun Q, Brook RD, Harkema JR (2014). Cardiovascular depression in rats exposed to inhaled particulate matter and ozone: effects of diet-induced metabolic syndrome. Environ Health Perspect. 122(1):27-33. PubMed PMID: 24169565.

Liu C, Xu X, Bai Y, Wang TY, Rao X, Wang A, Sun L, Ying Z, Gushchina L, Maiseyeu A, Morishita M, Sun Q, Harkema JR, Rajagopalan S (2014). Air pollution-mediated susceptibility to inflammation and insulin resistance: influence of CCR2 pathways in mice. Environ Health Perspect. 122(1):17-26. PubMed PMID: 24149114.

Sun L, Liu C, Xu X, Ying Z, Maiseyeu A, Wang A, Allen K, Lewandowski RP, Bramble LA, Morishita M, Wagner JG, Dvonch JT, Sun Z, Yan X, Brook RD, Rajagopalan S, Harkema JR, Sun Q, Fan Z (2013). Ambient fine particulate matter and ozone exposures induce inflammation in epicardial and perirenal adipose tissues in rats fed a high fructose diet. Part Fibre Toxicol. 10(1):43. PubMed PMID: 23968387.

Brook RD, Bard RL, Kaplan MJ, Yalavarthi S, Morishita M, Dvonch JT, Wang L, Yang HY, Spino C, Mukherjee B, Oral EA, Sun Q, Brook JR, Harkema J, Rajagopalan S (2013). The effect of acute exposure to coarse particulate matter air pollution in a rural location on circulating endothelial progenitor cells: results from a randomized controlled study. Inhal Toxicol. 25(10):587-92. PubMed PMID: 23919441.

Kopec AK, Boverhof DR, Nault R, Harkema JR, Tashiro C, Potter D, Sharratt B, Chittim B, Zacharewski TR (2013). Toxicogenomic evaluation of long-term hepatic effects of TCDD in immature, ovariectomized C57BL/6 mice. Toxicol Sci. 135(2):465-75. PubMed PMID:23864506.

Brandenberger C, Rowley NL, Jackson-Humbles DN, Zhang Q, Bramble LA, Lewandowski RP, Wagner JG, Chen W, Kaplan BL, Kaminski NE, Baker GL, Worden RM, Harkema JR (2013). Engineered silica nanoparticles act as adjuvants to enhance allergic airway disease in mice. Part Fibre Toxicol. 10(1):26. PubMed PMID: 23815813.

Karmaus PW, Wagner JG, Harkema JR, Kaminski NE, Kaplan BL (2013). Cannabidiol (CBD) enhances lipopolysaccharide (LPS)-induced pulmonary inflammation in C57BL/6 mice. J Immunotoxicol. 10(3):321-8. PubMed PMID: 23173851.

Hashsham, Syed A.

Wong MV, Hashsham SA, Gulari E, Rouillard JM, Aw TG, Rose JB (2013). Detection and characterization of human pathogenic viruses circulating in community wastewater using multi target microarrays and polymerase chain reaction. J Water Health. 11(4):659-70. PubMed PMID: 24334840.

Zhu YG, Johnson TA, Su JQ, Qiao M, Guo GX, Stedtfeld RD, Hashsham SA, Tiedje JM (2013). Diverse and abundant antibiotic resistance genes in Chinese swine farms. Proceed-

ings of the National Academy of Sciences of the United States of America. 110(9): 3435-3440.

Kronlein MR, Stedtfeld RD, Sorensen J, Bhaduri P, Stedtfeld T, Eanes S, Harichandran V, Haynes K, Stevens M, Hashsham SA (2013). Detection and Occurrence of Indicator Organisms and Pathogens. Water Environment Research. 85(10): 889-916.

Hollingworth, Robert M.

Tabashnik BE, Mota-Sanchez D, Whalon ME, Hollingworth RM, Carrière Y (2014). Defining terms for proactive management of resistance to Bt crops and pesticides. J Econ Entomol. 107(2):496-507. PubMed PMID: 24772527.

Jones, A. Daniel

Wang X, Jin MJ, Balan V, Jones AD, Li BZ, Dale BE, Yuan YJ (2013). Comparative metabolite profiling revealed limitations in xylose-fermenting yeast during glucose/xylose co-fermentation in the presence of inhibitors, Biotechnology and Bioengineering. 111(1): 152-164.

Vismeh R, Lu F, Chundawat SPS, Humpula JF, Azarpira A, Balan V, Dale BE, Ralph J, Jones AD (2013). Profiling of diferulates (plant cell wall cross-linkers) using ultrahigh-performance liquid chromatography-tandem mass spectrometry. Analyst. 138(21): 6683-6692.

Liu BS, Vieler A, Li C, Jones AD, Benning C (2013). Triacylglycerol profiling of microalgae Chlamydomonas reinhardtii and Nannochloropsis oceanic. Bioresource Technology. 146: 310-316.

Ghosh B, Westbrook TC, Jones AD (2014). Comparative structural profiling of trichome specialized metabolites in tomato (Solanum lycopersicum) and S. habrochaites: acylsugar profiles revealed by UHPLC/MS and NMR. Metabolomics. 10: 496-507. PMCID: PMC3984663.

He J, Pingali SV, Chundawat SPS, Pack A, Jones AD, Langan P, Davison BH, Urban V, Evans B, O'Neill H (2014). Controlled incorporation of deuterium into bacterial cellulose. Cellulose. 21: 927-936.

Li C, Wang Z, Jones AD (2014.) Chemical imaging of trichome specialized metabolites using contact printing and laser desorption/ionization mass spectrometry. Analytical and Bioanalytical Chemistry. 406(1): 171-182.

Humpula JF, Uppugundla N, Vismeh R, Sousa L, Chundawat SPS, Jones AD, Balan V, Dale BE, Cheh AM (2014). Probing the nature of AFEX-pretreated corn stover derived decomposition products that inhibit cellulase activity. Bioresource Technology. 152: 38-45.

Ekanayaka EAP, Li C, Jones AD (2014). Sesquiterpenoid glycosides from glandular trichomes of the wild tomato relative Solanum habrochaites. Phytochemistry. 98: 223-231.

Bao J, Gao X, Jones AD (2014). Unusual negative charge-directed fragmentation: collision-induced dissociation of cyclopentenone oxylipins in negative ion mode. Rapid Communications in Mass Spectrometry. 28 (5): 457-464.

Kang JH, McRoberts J, Shi F, Moreno JE, Jones AD, Howe GA (2014). The flavonoid biosynthetic enzyme chalcone isomerase modulates terpenoid production in glandular trichomes of tomato. Plant Physiology. 164(3); 1161-1174. PMCID: PMC3938611.

Pan RH, Jones AD, Hu JP(2014). Cardiolipin-mediated mitochondrial dynamics and stress response in Arabidopsis. The Plant Cell. 26: 391-409.

Kim K, Mall C, Taylor SL, Hitchcock S, Zhang C, Wettersten HI, Jones AD, Chapman A, Weiss RH (2014). Mealtime, temporal, and daily variability of the human urinary and plasma metabolomes in a tightly controlled environment. PLoS One. 9(1): e86223. PMCID: PMC3901684.

Kaminski, Norbert E.

Chen W, Zhang Q, Kaplan BL, Baker GL, Kaminski NE (2013). Induced T cell cytokine production is enhanced by engineered nanoparticles. Nanotoxicology. PubMed PMID: 24256152.

Rhomberg LR, Goodman JE, Bailey LA, Prueitt RL, Beck NB, Bevan C, Honeycutt M, Kaminski NE, Paoli G, Pottenger LH, Scherer RW, Wise KC, Becker RA (2013). A survey of frameworks for best practices in weight-of-evidence analyses. Crit Rev Toxicol. 43(9):753-84. PubMed PMID: 24040995.

Ngaotepprutaram T, Kaplan BL, Kaminski NE (2013). Impaired NFAT and NFκB activation are involved in suppression of CD40 ligand expression by Δ(9)-tetrahydrocannabinol in human CD4(+) T cells. Toxicol Appl Pharmacol. 273(1):209-18. PubMed PMID: 23999542.

Brandenberger C, Rowley NL, Jackson-Humbles DN, Zhang Q, Bramble LA, Lewandowski RP, Wagner JG, Chen W, Kaplan BL, Kaminski NE, Baker GL, Worden RM, Harkema JR (2014). Engineered silica nanoparticles act as adjuvants to enhance allergic airway disease in mice. Part Fibre Toxicol. 10(1):26. PubMed PMID: 23815813.

Kaneene, John B.

Kaneene JB, Miller R, Steele JH, Thoen CO (2014). Preventing and controlling zoonotic

Education

tuberculosis: a One Health approach. Vet Ital. 50(1):7-22. PubMed PMID: 24715597.

Grear DA, Kaneene JB, Averill JJ, Webb CT (2014). Local cattle movements in response to ongoing bovine tuberculosis zonation and regulations in Michigan, USA. Prev Vet Med. 114(3-4):201-12. PubMed PMID: 24685049.

Hamilton E, Kaneene JB (2013). The authors respond. J Am Vet Med Assoc. 243(11):1518. PubMed PMID: 24396935.

Cho S, Fossler CP, Diez-Gonzalez F, Wells SJ, Hedberg CW, Kaneene JB, Ruegg PL, Warnick LD, Bender JB (2013). Herd-level risk factors associated with fecal shedding of Shiga toxin-encoding bacteria on dairy farms in Minnesota, USA. Can Vet J. 54(7):693-7. PubMed PMID: 24155466.

Hamilton E, Kruger JM, Schall W, Beal M, Manning SD, Kaneene JB (2013). Acquisition and persistence of antimicrobial-resistant bacteria isolated from dogs and cats admitted to a veterinary teaching hospital. J Am Vet Med Assoc. 243(7):990-1000. PubMed PMID: 24050566.

Adams AP, Bolin SR, Fine AE, Bolin CA, Kaneene JB (2013). Comparison of PCR versus culture for detection of Mycobacterium bovis after experimental inoculation of various matrices held under environmental conditions for extended periods. Appl Environ Microbiol. 79(20):6501-6. PubMed PMID: 23956383.

LaPres, John J.

Tappenden DM, Hwang HJ, Yang L, Thomas RS, Lapres JJ (2013). The Aryl-Hydrocarbon Receptor Protein Interaction Network (AHR-PIN) as Identified by Tandem Affinity Purification (TAP) and Mass Spectrometry. J Toxicol. 2013:279829. PubMed PMID: 24454361.

Proper SP, Saini Y, Greenwood KK, Bramble LA, Downing NJ, Harkema JR, Lapres JJ (2014). Loss of hypoxia-inducible factor 2 alpha in the lung alveolar epithelium of mice leads to enhanced eosinophilic inflammation in cobalt-induced lung injury. Toxicol Sci. 137(2):447-57. PubMed PMID: 24218148.

Leinninger, Gina M.

McClain JL, Grubišić V, Fried D, Gomez-Suarez RA, Leinninger GM, Sévigny J, Parpura V, Gulbransen BD (2014). Ca2+ responses in enteric glia are mediated by connexin-43 hemichannels and modulate colonic transit in mice. Gastroenterology. 146(2):497-507. e1. PubMed PMID: 24211490.

Opland D, Sutton A, Woodworth H, Brown J, Bugescu R, Garcia A, Christensen L, Rhodes C, Myers M Jr, Leinninger G (2013). Loss of neurotensin receptor-1 disrupts the control of the mesolimbic dopamine system by leptin and promotes hedonic feeding and obesity. Mol Metab. 2(4):423-34. PubMed PMID: 24327958.

Li, Hui

Chen Z, Li H, Peng A, and Gao Y(2014). Oxidation of Polycyclic Aromatic Hydrocarbons by Horseradish Peroxidase in Water containing an Organic Cosolvent. Environmental Science and Pollution Research. 21:10696-10705.

Zhang Y, Boyd SA, Teppen BJ, Tiedje JM, Li H (2014). Organic Acids Enhance Bioavailability of Tetracycline in Water to Escherichia coli for Uptake and Expression of Antibiotic Resistance. Water Research. 65:98-106.

Zhang Y, Boyd SA, Teppen BJ, Tiedje JM, Li H (2014). Role of tetracycline speciation in the bioavailability to Escherichia coli for uptake and expression of antibiotic resistance. Environ Sci Technol. 48(9):4893-900. PubMed PMID: 24717018.

Li, Ning

Li N, Bhattacharya P, Karavalakis G, Williams K, Gysel N, Rivera-Rios N (2014). Emissions from Commercial-grade Charbroiling Meat Operations Induce Oxidative Stress and Inflammatory Responses in Human Bronchial Epithelial Cells. Tox Reports.

Lu Y, Su S, Jin W, Wang B, Li N, Shen H, Li W, Huang Y, Chen H, Zhang Y, Chen Y, Lin N, Wang X, Tao S (2014). Characteristics and cellular effects of ambient particulate matter from Beijing. Environ Pollut. 191:63-9.

Escobedo LE, Champion WM, Li N, Montoya LD (2014). Indoor air quality in Latino homes in Boulder, Colorado. Atmos Environ. 92:69e75.

Brandenberger C, Li N, Jackson-Humbles DN, Rockwell CE, Wagner JG, Harkema JR (2014). Enhanced allergic airway disease in old mice is associatedwith a Th17 response. Clin Exp Allergy. 44(10):1282-92.

Li N, Wang M, Barajas B, Sioutas C, Williams MA, Nel AE (2013). Nrf2 deficiency in dendritic cells enhances the adjuvant effect of ambient ultrafine particles on allergic sensitization. J Innate Immunity. 5(6):543-54.

Linz, John E.

Linz JE, Wee J, Roze LV (2014). Aspergillus parasiticus SU-1 genome sequence, predicted chromosome structure, and comparative gene expression under aflatoxin inducing conditions: evidence that differential expression contributes to species phenotype. Eukaryot

Cell. pii: EC.00108-14. PubMed PMID: 24951444.

Baidya S, Duran R, Lohmar JM, Harris-Coward PY, Cary JW, Hong SY, Roze LV, Linz JE, Calvo AM (2014). VeA is associated with the response to oxidative stress in the aflatoxin-producer Aspergillus flavus. Eukaryot Cell. pii: EC.00099-14. PubMed PMID: 24951443.

Spraker JE, Jewell K, Roze LV, Scherf J, Ndagano D, Beaudry R, Linz JE, Allen C, Keller NP (2014). A volatile relationship: profiling an inter-kingdom dialogue between two plant pathogens, Ralstonia Solanacearum and Aspergillus Flavus. J Chem Ecol. 40(5):502-13. PubMed PMID: 24801606.

Long, David T.

Parsons MJ, Long DT, Giesy JP, Kannan K (2014). Inferring sources for mercury to inland lakes using sediment chronologies of polycyclic aromatic hydrocarbons. Environ Sci Process Impacts. PubMed PMID: 24875801.

Klein Douwel D, Boonen RA, Long DT, Szypowska AA, Räschle M, Walter JC, Knipscheer P (2014). XPF-ERCC1 acts in Unhooking DNA interstrand crosslinks in cooperation with FANCD2 and FANCP/SLX4. Mol Cell. 54(3):460-71.PubMed PMID: 24726325.

McElmurry SP, Long DT, Voice TC (2014). Stormwater dissolved organic matter: influence of land cover and environmental factors. Environ Sci Technol. 48(1):45-53. PubMed PMID: 24308690.

Lookingland, Keith J.

Simkins T, Crawford RB, Goudreau JL, Lookingland KJ, Kaplan BL (2014). Enhanced Humoral Immunity in Mice Lacking CB1 and CB2 Receptors (Cnr1 (-/-) /Cnr2 (-/-) Mice) is not Due to Increased Splenic Noradrenergic Neuronal Activity. J Neuroimmune Pharmacol. PubMed PMID: 24870806.

Benskey BS, Lee KY, Parikh K, Lookingland KJ, Goudreau JL (2013). Sustained resistance to acute MPTP toxicity by hypothalamic dopamine neurons following chronic neurotoxicant exposure is associated with sustained up-regulation of parkin protein. Neurotoxicology. 37: 144-53.

Luyendyk, James P.

Raveendran VV, Kassel KM, Smith DD, Luyendyk JP, Williams KJ, Cherian R, Reed GA, Flynn CA, Csanaky IL, Lickteig AL, Pratt-Hyatt MJ, Klaassen CD, Dileepan KN (2014). H1-antihistamines exacerbate high-fat diet-induced hepatic steatosis in wild-type but not in apolipoprotein E knockout mice. Am J Physiol Gastrointest Liver Physiol. 307(2):G219-28. PubMed PMID: 24852568.

Ni HM, Woolbright BL, Williams J, Copple B, Cui W, Luyendyk JP, Jaeschke H, Ding WX (2014). Nrf2 promotes the development of fibrosis and tumorigenesis in mice with defective hepatic autophagy. J Hepatol. pii: S0168-8278(14)00306-7.PubMed PMID: 24815875.

Kopec AK, Luyendyk JP (2014). Coagulation in liver toxicity and disease: role of hepatocyte tissue factor. Thromb Res. 133 Suppl 1:S57-9. PubMed PMID: 24759146.

Mochizuki A, Pace A, Rockwell CE, Roth KJ, Chow A, O'Brien KM, Albee R, Kelly K, Towery K, Luyendyk JP, Copple BL (2014). Hepatic stellate cells orchestrate clearance of necrotic cells in a hypoxia-inducible factor-1α-dependent manner by modulating macrophage phenotype in mice. J Immunol. 192(8):3847-57. PubMed PMID: 24639359.

Joshi N, Kopec AK, Towery K, Williams KJ, Luyendyk JP (2014). The antifibrinolytic drug tranexamic acid reduces liver injury and fibrosis in a mouse model of chronic bile duct injury. J Pharmacol Exp Ther. 349(3):383-92. PubMed PMID: 24633426.

Rautou PE, Vion AC, Luyendyk JP, Mackman N (2014). Circulating microparticle tissue factor activity is increased in patients with cirrhosis. Hepatology. PubMed PMID: 24470301.

Li G, Zhu Y, Tawfik O, Kong B, Williams JA, Zhan L, Kassel KM, Luyendyk JP, Wang L, Guo GL (2013). Mechanisms of STAT3 activation in the liver of FXR knockout mice. Am J Physiol Gastrointest Liver Physiol. 305(11):G829-37. PubMed PMID: 24091600.

O'Brien KM, Allen KM, Rockwell CE, Towery K, Luyendyk JP, Copple BL (2013). IL-17A synergistically enhances bile acid-induced inflammation during obstructive cholestasis. Am J Pathol. 183(5):1498-507. PubMed PMID: 24012680.

Mansfield, Linda S.

Flies AS, Maksimoski MT, Mansfield LS, Weldele ML, Holekamp KE (2014). Characterization of Toll-like receptors 1-10 in spotted hyenas. Vet Res Commun. 38(2):165-70. PubMed PMID: 24488231.

Malik A, Sharma D, St Charles J, Dybas LA, Mansfield LS (2014). Contrasting immune responses mediate Campylobacter jejuni-induced colitis and autoimmunity. Mucosal Immunol. 7(4):802-17. PubMed PMID: 24220299.

Samuelson DR, Eucker TP, Bell JA, Dybas L, Mansfield LS, Konkel ME (2013). The Cam-

pylobacter jejuni CiaD effector protein activates MAP kinase signaling pathways and is required for the development of disease. Cell Commun Signal. 11:79. PubMed PMID: 24144181.

Mazei-Robison, Michelle

Mazei-Robison MS, Appasani R, Edwards S, Wee S, Taylor SR, Picciotto MR, Koob GF, Nestler EJ (2014). Self-administration of ethanol, cocaine, or nicotine does not decrease the soma size of ventral tegmental area dopamine neurons. PLoS One. 9(4):e95962. PubMed PMID: 24755634.

Der-Avakian A, Mazei-Robison MS, Kesby JP, Nestler EJ, Markou A (2014). Enduring Deficits in Brain Reward Function after Chronic Social Defeat in Rats: Susceptibility, Resilience, and Antidepressant Response. Biol Psychiatry. pii: S0006-3223(14)00052-3. PubMed PMID: 24576687.

Walsh JJ, Friedman AK, Sun H, Heller EA, Ku SM, Juarez B, Burnham VL, Mazei-Robison MS, Ferguson D, Golden SA, Koo JW, Chaudhury D, Christoffel DJ, Pomeranz L, Friedman JM, Russo SJ, Nestler EJ, Han MH (2013). Stress and CRF gate neural activation of BDNF in the mesolimbic reward pathway. Nat Neurosci. 17(1):27-9. PubMed PMID: 24270188.

Vialou V, Bagot RC, Cahill ME, Ferguson D, Robison AJ, Dietz DM, Fallon B, Mazei-Robison M, Ku SM, Harrigan E, Winstanley CA, Joshi T, Feng J, Berton O, Nestler EJ (2014). Prefrontal cortical circuit for depression- and anxiety-related behaviors mediated by cholecystokinin: role of ΔFosB. J Neurosci. 34(11):3878-87. PMCID: PMC3951691

McCabe, Laura R.

Britton RA, Irwin R, Quach D, Schaefer L, Zhang J, Lee T, Parameswaran N, McCabe LR (2014). Probiotic L. reuteri Treatment Prevents Bone Loss in a Menopausal Ovariectomized Mouse Model. J Cell Physiol. PubMed PMID: 24677054.

Youm YH, Grant RW, McCabe LR, Albarado DC, Nguyen KY, Ravussin A, Pistell P, Newman S, Carter R, Laque A, Münzberg H, Rosen CJ, Ingram DK, Salbaum JM, Dixit VD (2013). Canonical Nlrp3 inflammasome links systemic low-grade inflammation to functional decline in aging. Cell Metab. 18(4):519-32. PubMed PMID: 24093676.

Irwin R, Lee T, Young VB, Parameswaran N, McCabe LR (2013). Colitis-induced bone loss is gender dependent and associated with increased inflammation. Inflamm Bowel Dis. 19(8):1586-97. PubMed PMID: 23702805.

McCabe LR, Irwin R, Schaefer L, Britton RA (2013). Probiotic use decreases intestinal inflammation and increases bone density in healthy male but not female mice. J Cell Physiol. 228(8):1793-8. PubMed PMID: 23389860.

McCormick, Justin J.

El-Dakdouki MH, Xia J, Zhu DC, Kavunja H, Grieshaber J, O'Reilly S, McCormick JJ, Huang X (2014). Assessing the in vivo efficacy of doxorubicin loaded hyaluronan nanoparticles. ACS Appl Mater Interfaces. 6(1):697-705. PubMed PMID: 24308364.

Murphy, Cheryl A.

Sitar SP, Jasonowicz AJ, Murphy CA, Goetz FW (2014). Estimates of skipped spawning in lean and siscowet lake trout (Salvelinus namaycush) in southern Lake Superior: Implications for stock assessment. Trans. Am. Fish. Soc 143:660-672.

Olson, L. Karl

Chang HT, Olson LK, Schwartz KA (2013). Ketolytic and glycolytic enzymatic expression profiles in malignant gliomas: implication for ketogenic diet therapy. Nutr Metab (Lond). 10(1):47. PubMed PMID: 23829383.

Paneth, Nigel

Allred EN, Capone A Jr, Fraioli A, Dammann O, Droste P, Duker J, Gise R, Kuban K, Leviton A, O'Shea TM, Paneth N, Petersen R, Trese M, Stoessel K, Vanderveen D, Wallace DK, Weaver G (2014). Retinopathy of prematurity and brain damage in the very preterm newborn. J AAPOS. 18(3):241-7. PubMed PMID: 24924276.

Korzeniewski SJ, Soto-Rivera CL, Fichorova RN, Allred EN, Kuban KC, O'Shea TM, Paneth N, Agus M, Dammann O, Leviton A (2014). Are preterm newborns who have relative hyperthyrotropinemia at increased risk of brain damage? J Pediatr Endocrinol Metab. PubMed PMID: 24897395.

Mudd LM, Pivarnik JM, Pfeiffer KA, Paneth N, Chung H, Holzman C (2014). Maternal Physical Activity During Pregnancy, Child Leisure-Time Activity, and Child Weight Status at 3-9 Years. J Phys Act Health. PubMed PMID: 24829090.

Tarnow-Mordi WO, Duley L, Field D, Marlow N, Morris J, Newnham J, Paneth N, Soll RF, Sweet D (2014). Timing of cord clamping in very preterm infants: more evidence is needed. Am J Obstet Gynecol. PubMed PMID: 24686151.

van Wassenaer-Leemhuis A, Ares S, Golombek S, Kok J, Paneth N, Kase J, LaGamma EF (2014). Thyroid hormone supplementation in preterm

infants born before 28 weeks gestational age and neurodevelopmental outcome at age 36 months. Thyroid. 24(7):1162-9. PubMed PMID: 24684245.

Kuban KC, O'Shea TM, Allred EN, Paneth N, Hirtz D, Fichorova RN, Leviton A; for the ELGAN Study Investigators (2014). Systemic Inflammation and Cerebral Palsy Risk in Extremely Preterm Infants. J Child Neurol. PubMed PMID: 24646503.

O'Shea TM, Joseph RM, Kuban KC, Allred EN, Ware J, Coster T, Fichorova RN, Dammann O, Leviton A; ELGAN Study Investigators (2014). Elevated blood levels of inflammation-related proteins are associated with an attention problem at age 24 mo in extremely preterm infants. Pediatr Res. 75(6):781-7. PubMed PMID: 24614800.

Paneth N (2013). Commentary: two views of cholera. Int J Epidemiol. 42(6):1565-6. PubMed PMID: 24415593.

Elder TE, Goddeeris JH, Haider SJ, Paneth N (2014). The changing character of the Black-White infant mortality gap, 1983-2004. Am J Public Health. 104 Suppl 1:S105-11. PubMed PMID: 24354831.

Wei C, Lu Q, Khoo SK, Lenski M, Fichorova RN, Leviton A, Paneth N (2014). Comparison of frozen and unfrozen blood spots for gene expression studies. J Pediatr. 164(1):189-191.e1. PubMed PMID: 24209717.

Logan JW, Westra SJ, Allred EN, O'Shea TM, Kuban K, Paneth N, Leviton A; ELGAN Study investigators (2013). Antecedents of perinatal cerebral white matter damage with and without intraventricular hemorrhage in very preterm newborns. Pediatr Neurol. 49(2):88-96. PubMed PMID: 23859853.

Movsas TZ, Paneth N, Rumbeiha W, Zyskowski J, Gewolb IH (2013). Effect of routine vaccination on aluminum and essential element levels in preterm infants. JAMA Pediatr. 167(9):870-2. PubMed PMID: 23856981.

Slaughter J, Wei C, Korzeniewski SJ, Lu Q, Beck JS, Khoo SK, Brovont A,Maurer J, Martin D, Lenski M, Paneth N (2013). High correlations in gene expression between paired umbilical cord blood and neonatal blood of healthy newborns on Guthrie cards. J Matern Fetal Neonatal Med. 26(18):1765-7. PubMed PMID: 23668672.

Movsas TZ, Pinto-Martin JA, Whitaker AH, Feldman JF, Lorenz JM, Korzeniewski SJ, Levy SE, Paneth N (2013). Autism spectrum disorder is associated with ventricular enlargement in a low birth weight population. J Pediatr. 163(1):73-8. PubMed PMID: 23410601.

Leviton A, Allred EN, Dammann O, Engelke S, Fichorova RN, Hirtz D, Kuban KC, Ment LR, O'shea TM, Paneth N, Shah B, Schreiber MD; ELGAN Study Investigators (2013). Systemic inflammation, intraventricular hemorrhage, and white matter injury. J Child Neurol. 28(12):1637-45. PubMed PMID: 23112243.

Pestka, James J.

Pestka JJ, Vines LL, Bates MA, He K, Langohr I (2014). Comparative Effects of n-3, n-6 and n-9 Unsaturated Fatty Acid-Rich Diet Consumption on Lupus Nephritis, Autoantibody Production and CD4+ T Cell-Related Gene Responses in the Autoimmune NZBWF1 Mouse. PLoS One. 9(6):e100255. PubMed PMID: 24945254.

Wu W, He K, Zhou HR, Berthiller F, Adam G, Sugita-Konishi Y, Watanabe M, Krantis A, Durst T, Zhang H, Pestka JJ (2014). Effects of oral exposure to naturally-occurring and synthetic deoxynivalenol congeners on proinflammatory cytokine and chemokine mRNA expression in the mouse. Toxicol Appl Pharmacol. 278(2):107-15. PubMed PMID: 24793808.

Wu F, Groopman JD, Pestka JJ (2014). Public health impacts of foodborne mycotoxins. Annu Rev Food Sci Technol. 5:351-72. PubMed PMID: 24422587.

Wu W, Zhou HR, He K, Pan X, Sugita-Konishi Y, Watanabe M, Zhang H, Pestka JJ (2014). Role of cholecystokinin in anorexia induction following oral exposure to the 8-keto-trichothecenes deoxynivalenol, 15-acetyldeoxynivalenol, 3-acetyldeoxynivalenol, fusarenon X, and nivalenol. Toxicol Sci. 138(2):278-89. PubMed PMID: 24385417.

Pan X, Whitten DA, Wilkerson CG, Pestka JJ (2014). Dynamic changes in ribosome-associated proteome and phosphoproteome during deoxynivalenol-induced translation inhibition and ribotoxic stress. Toxicol Sci. 138(1):217-33. PubMed PMID: 24284785.

Pan X, Whitten DA, Wu M, Chan C, Wilkerson CG, Pestka JJ (2013). Early phosphoproteomic changes in the mouse spleen during deoxynivalenol-induced ribotoxic stress. Toxicol Sci. 135(1):129-43. PubMed PMID: 23811945.

Robinson, Norman E.

Stack A, Derksen FJ, Williams KJ, Robinson NE, Jackson WF (2014). Lung Region and Racing Affect Mechanical Properties of Equine Pulmonary Microvasculature. J Appl Physiol (1985). PubMed PMID: 24925981.

Millerick-May ML, Karmaus W, Derksen FJ, Berthold B, Robinson NE (2014). Airborne particulates (PM10) and tracheal mucus: A case-control study at an American Thoroughbred racetrack. Equine Vet J. PubMed PMID: 24905487.

Boyko AR, Brooks SA, Behan-Braman A, Castelhano M, Corey E, Oliveira KC, Swinburne JE, Todhunter RJ, Zhang Z, Ainsworth DM, Robinson NE (2014). Genomic analysis establishes correlation between growth and laryngeal neuropathy in Thoroughbreds. BMC Genomics. 15:259. PubMed PMID: 24707981.

Shaba JJ, Behan Braman A, Robinson NE (2013). Plasma cortisol concentration increases within 6 hours of stabling in RAO-affected horses. Equine Vet J. PubMed PMID: 24164413.

Williams KJ, Robinson NE, Lim A, Brandenberger C, Maes R, Behan A, Bolin SR (2013). Experimental induction of pulmonary fibrosis in horses with the gammaherpesvirus equine herpesvirus 5. PLoS One. 8(10):e77754. PubMed PMID: 24147074.

Stack A, Derksen FJ, Sordillo LM, Williams KJ, Stick JA, Brandenberger C, Steibel JP, Robinson NE (2013). Effects of exercise on markers of venous remodeling in lungs of horses. Am J Vet Res. 74(9):1231-8. PubMed PMID: 23977896.

Robinson NE, Williams KJ, Stack A, Derksen FJ, Hauptman J, Millerick-May M, DeFeijter-Rupp H (2013). Reply to Pancheva, Panchev, and Pancheva. J Appl Physiol (1985). 115(3):413. PubMed PMID: 23908300.

Robison, A.J.

Vialou V, Bagot RC, Cahill ME, Ferguson D, Robison AJ, Dietz DM, Fallon B, Mazei-Robison M, Ku SM, Harrigan E, Winstanley CA, Joshi T, Feng J, Berton O, Nestler EJ (2014). Prefrontal cortical circuit for depression- and anxiety-related behaviors mediated by cholecystokinin: role of ΔFosB. J Neurosci. 34(11):3878-87. PubMed PMID: 24623766.

Robison AJ, Vialou V, Sun HS, Labonte B, A Golden S, Dias C, Turecki G, Tamminga C, Russo S, Mazei-Robison M, Nestler EJ (2014). Fluoxetine epigenetically alters the CaMKIIα promoter in nucleus accumbens to regulate ΔFosB binding and antidepressant effects. Neuropsychopharmacology. 39(5):1178-86. PubMed PMID: 24240473.

Sanders PN, Koval OM, Jaffer OA, Prasad AM, Businga TR, Scott JA, Hayden PJ, Luczak ED, Dickey DD, Allamargot C, Olivier AK, Meyerholz DK, Robison AJ, Winder DG, Blackwell TS, Dworski R, Sammut D, Wagner BA, Buettner GR, Pope RM, Miller FJ Jr, Dibbern ME, Haitchi HM, Mohler PJ, Howarth PH, Zabner J, Kline JN, Grumbach IM, Anderson ME (2013). CaMKII is essential for the proasthmatic effects of oxidation. Sci Transl Med. 5(195):195ra97. PubMed PMID: 23884469.

Rockwell, Cheryl

Mochizuki A, Pace A, Rockwell CE, Roth KJ, Chow A, O'Brien KM, Albee R, Kelly K, Towery K, Luyendyk JP, Copple BL (2014). Hepatic stellate cells orchestrate clearance of necrotic cells in a hypoxia-inducible factor-1α-dependent manner by modulating macrophage phenotype in mice. J Immunol. 192(8):3847-57. PubMed PMID: 24639359.

O'Brien KM, Allen KM, Rockwell CE, Towery K, Luyendyk JP, Copple BL (2013). IL-17A synergistically enhances bile acid-induced inflammation during obstructive cholestasis. Am J Pathol. 183(5):1498-507. PubMed PMID: 24012680.

Zagorski JW, Turley AE, Dover HE, VanDenBerg KR, Compton JR, Rockwell CE (2013). The Nrf2 activator, tBHQ, differentially affects early events following stimulation of Jurkat cells. Toxicol Sci. 136(1):63-71. PubMed PMID: 23945499.

Rosenman, Kenneth D.

White GE, Seaman C, Filios MS, Mazurek JM, Flattery J, Harrison RJ, Reilly MJ, Rosenman KD, Lumia ME, Stephens AC, Pechter E, Fitzsimmons K, Davis LK (2014). Gender differences in work-related asthma: surveillance data from California, Massachusetts, Michigan, and New Jersey, 1993-2008. J Asthma. PubMed PMID: 24673105.

St Louis T, Ehrlich E, Bunn T, Kanotra S, Fussman C, Rosenman KD (2014). Proportion of dermatitis attributed to work exposures in the working population, United States, 2011 behavioral risk factor surveillance system. Am J Ind Med. 57(6):653-9. PubMed PMID: 24619601.

Banga N, Guss P, Banga A, Rosenman KD (2014). Incidence and variables associated with inadequate antibody titers after pre-exposure rabies vaccination among veterinary medical students. Vaccine. 32(8):979-83. PubMed PMID: 24394442.

Stanbury M, Rosenman KD (2014). Occupational health disparities: a state public health-based approach. Am J Ind Med. 57(5):596-604. PubMed PMID: 24375809.

Rosenman KD, Fussman C (2014). Prevalence of work-related dermatitis in the working population. Am J Ind Med. 57(1):125-6. PubMed PMID: 23129552.

Rosenman KD (2014). Hydraulic Fracturing and the Risk of Silicosis. Clinical Pulmonary Medicine. 21: 167-172.

Kica J, Rosenman KD (2014). Multi-Source Surveillance System for Work-Related Skull Fractures. J Safety Research. 51: 49-56.

Roth, Robert A.

Poulsen KL, Olivero-Verbel J, Beggs KM, Ganey PE, Roth RA (2014). Trovafloxacin enhances lipopolysaccharide-stimulated production of tumor necrosis factor-α by macrophages: role of the DNA damage response. J Pharmacol Exp Ther. 350(1):164-70. PubMed PMID: 24817034.

Ju C, Roth RA (2014). PKCs: pernicious kinase culprits in acetaminophen pathogenesis. Hepatology. 59(4):1229-31. PubMed PMID: 24677191.

Poulsen KL, Albee RP, Ganey PE, Roth RA (2014). Trovafloxacin potentiation of lipopolysaccharide-induced tumor necrosis factor release from RAW 264.7 cells requires extracellular signal-regulated kinase and c-Jun N-Terminal Kinase. J Pharmacol Exp Ther. 349(2):185-91. PubMed PMID: 24525298.

Beggs KM, Fullerton AM, Miyakawa K, Ganey PE, Roth RA. Molecular mechanisms of hepatocellular apoptosis induced by trovafloxacin-tumor necrosis factor-alpha interaction. Toxicol Sci. 2014 Jan;137(1):91-101. doi: 10.1093/toxsci/kft226. Epub 2013 Oct 4. PubMed PMID: 24097668; PubMed Central PMCID: PMC3871929.

Fullerton AM, Roth RA, Ganey PE (2013). Pretreatment with TCDD exacerbates liver injury from Concanavalin A: critical role for NK cells. Toxicol Sci. 136(1):72-85. PubMed PMID: 23970800.

Lu J, Roth RA, Malle E, Ganey PE (2013). Roles of the hemostatic system and neutrophils in liver injury from co-exposure to amiodarone and lipopolysaccharide. Toxicol Sci. 136(1):51-62. PubMed PMID: 23912913.

Rowlands, J. Craig

Cox LA, Popken D, Marty MS, Rowlands JC, Patlewicz G, Goyak KO, Becker RA (2014). Developing scientific confidence in HTS-derived prediction models: Lessons learned from an endocrine case study. Regul Toxicol Pharmacol. 69(3):443-50. PubMed PMID: 24845243.

Budinsky RA, Schrenk D, Simon T, Van den Berg M, Reichard JF, Silkworth JB, Aylward LL, Brix A, Gasiewicz T, Kaminski N, Perdew G, Starr TB, Walker NJ, Rowlands JC (2014). Mode of action and dose-response framework analysis for receptor-mediated toxicity: The aryl hydrocarbon receptor as a case study. Crit Rev Toxicol. 44(1):83-119. PubMed PMID: 24245878.

Rowlands JC, Sander M, Bus JS; FutureTox Organizing Committee (2014). FutureTox: building the road for 21st century toxicology and risk assessment practices. Toxicol Sci. 137(2):269-77. PubMed PMID: 24204016.

Rowlands JC, Budinsky R, Gollapudi B, Black MB, Wolfinger RD, Cukovic D, Dombkowski A, Thompson CM, Urban JD, Thomas RS (2013). A genomics-based analysis of relative potencies of dioxin-like compounds in primary rat hepatocytes. Toxicol Sci. 136(2):595-604. PubMed PMID: 24046277.

Thomas RS, Philbert MA, Auerbach SS, Wetmore BA, Devito MJ, Cote I, Rowlands JC, Whelan MP, Hays SM, Andersen ME, Meek ME, Reiter LW, Lambert JC, Clewell HJ 3rd, Stephens ML, Zhao QJ, Wesselkamper SC, Flowers L, Carney EW, Pastoor TP, Petersen DD, Yauk CL, Nong A (2013). Incorporating new technologies into toxicity testing and risk assessment: moving from 21st century vision to a data-driven framework. Toxicol Sci. 136(1):4-18. PubMed PMID: 23958734.

Harrill JA, Hukkanen RR, Lawson M, Martin G, Gilger B, Soldatow V, Lecluyse EL, Budinsky RA, Rowlands JC, Thomas RS (2013). Knockout of the aryl hydrocarbon receptor results in distinct hepatic and renal phenotypes in rats and mice. Toxicol Appl Pharmacol. 272(2):503-18. PubMed PMID: 23859880.

Sikarskie, James G.

Harrison TM, Harrison SH, Sikarskie JG, Armstrong D (2014). Humoral response to calicivirus in captive tigers given a dual-strain vaccine. J Zoo Wildl Med. 45(1):23-8. PubMed PMID: 24712158.

Swain, Greg M.

Brocenschi RF, Rocha-Filho RC, Duran B, Swain GM (2014). The analysis of estrogenic compounds by flow injection analysis with amperometric detection using a boron-doped diamond electrode. Talanta. 126:12-9. PubMed PMID: 24881529.

Duran B, Brocenschi RF, France M, Galligan JJ, Swain GM (2014). Electrochemical activation of diamond microelectrodes: implications for the in vitro measurement of serotonin in the bowel. Analyst. 139(12):3160-6. PubMed PMID: 24802953.

Wehrwein EA, Novotny M, Swain GM, Parker LM, Esfahanian M, Spitsbergen JM,

Habecker BA, Kreulen DL (2013). Regional changes in cardiac and stellate ganglion norepinephrine transporter in DOCA-salt hypertension. Auton Neurosci. 179(1-2):99-107. PubMed PMID: 24075956.

Fhaner MJ, Galligan JJ, Swain GM (2013). Increased catecholamine secretion from single adrenal chromaffin cells in DOCA-salt hypertension is associated with potassium channel dysfunction. ACS Chem Neurosci. 4(10):1404-13. PubMed PMID: 23937098.

Li L, Swain GM (2013). Effects of aging temperature and time on the corrosion protection provided by trivalent chromium process coatings on AA2024-T3. ACS Appl Mater Interfaces. 5(16):7923-30. PubMed PMID: 23845106.

Teppen, Brian J.

Zhang Y, Boyd SA, Teppen BJ, Tiedje JM, Li H (2014). Role of tetracycline speciation in the bioavailability to Escherichia coli for uptake and expression of antibiotic resistance. Environ Sci Technol. 48(9):4893-900. PubMed PMID: 24717018.

Zhang Y, Boyd SA, Teppen BJ, Tiedje JM, Li H (2014). Organic acids enhance bioavailability of tetracycline in water to Escherichia coli for uptake and expression of antibiotic resistance. Water Research. 65:98-106.

Tiedje, James M.

Siles JA, Rachid CT, Sampedro I, García-Romera I, Tiedje JM (2014). Microbial diversity of a mediterranean soil and its changes after biotransformed dry olive residue amendment. PLoS One. 9(7):e103035. PubMed PMID: 25058610.

Paula FS, Rodrigues JL, Zhou J, Wu L, Mueller RC, Mirza BS, Bohannan BJ, Nüsslein K, Deng Y, Tiedje JM, Pellizari VH (2014). Land use change alters functional gene diversity, composition and abundance in Amazon forest soil microbial communities. Mol Ecol. 23(12):2988-99. PubMed PMID: 24806276.

Vital M, Howe AC, Tiedje JM (2014). Revealing the bacterial butyrate synthesis pathways by analyzing (meta)genomic data. MBio. 5(2):e00889. PubMed PMID: 24757212.

Zhang Y, Boyd SA, Teppen BJ, Tiedje JM, Li H (2014). Role of tetracycline speciation in the bioavailability to Escherichia coli for uptake and expression of antibiotic resistance. Environ Sci Technol. 48(9):4893-900. PubMed PMID: 24717018.

Penton CR, Gupta VV, Tiedje JM, Neate SM, Ophel-Keller K, Gillings M, Harvey P, Pham A, Roget DK (2014). Fungal community structure in disease suppressive soils assessed by 28S LSU gene sequencing. PLoS One. 9(4):e93893. PubMed PMID: 24699870.

Howe AC, Jansson JK, Malfatti SA, Tringe SG, Tiedje JM, Brown CT (2014). Tackling soil diversity with the assembly of large, complex metagenomes. Proc Natl Acad Sci U S A. 111(13):4904-9. PubMed PMID: 24632729.

Cole JR, Tiedje JM (2014). History and impact of RDP: A legacy from Carl Woese to microbiology. RNA Biol. 11(3):239-243. PubMed PMID: 24607969.

Zhou J, Deng Y, Zhang P, Xue K, Liang Y, Van Nostrand JD, Yang Y, He Z, Wu L, Stahl DA, Hazen TC, Tiedje JM, Arkin AP (2014). Stochasticity, succession, and environmental perturbations in a fluidic ecosystem. Proc Natl Acad Sci U S A. 111(9):E836-45. PubMed PMID: 24550501.

Luo C, Rodriguez-R LM, Johnston ER, Wu L, Cheng L, Xue K, Tu Q, Deng Y, He Z, Shi JZ, Yuan MM, Sherry RA, Li D, Luo Y, Schuur EA, Chain P, Tiedje JM, Zhou J, Konstantinidis KT (2014). Soil microbial community responses to a decade of warming as revealed by comparative metagenomics. Appl Environ Microbiol. 80(5):1777-86. PubMed PMID: 24375144; PubMed Central PMCID: PMC3957593.

Cole JR, Wang Q, Fish JA, Chai B, McGarrell DM, Sun Y, Brown CT, Porras-Alfaro A, Kuske CR, Tiedje JM (2014). Ribosomal Database Project: data and tools for high throughput rRNA analysis. Nucleic Acids Res. 42(Database issue):D633-42. PubMed PMID: 24288368.

Deng J, Brettar I, Luo C, Auchtung J, Konstantinidis KT, Rodrigues JL, Höfle M, Tiedje JM (2014). Stability, genotypic and phenotypic diversity of Shewanella baltica in the redox transition zone of the Baltic Sea. Environ Microbiol. 16(6):1854-66. PubMed PMID: 24286373.

Van Doan T, Lee TK, Shukla SK, Tiedje JM, Park J (2013). Increased nitrous oxide accumulation by bioelectrochemical denitrification under autotrophic conditions: kinetics and expression of denitrification pathway genes. Water Res. 47(19):7087-97. PubMed PMID: 24210359.

Yang Y, Quensen J, Mathieu J, Wang Q, Wang J, Li M, Tiedje JM, Alvarez PJ (2014). Pyrosequencing reveals higher impact of silver nanoparticles than Ag+ on the microbial community structure of activated sludge. Water Res. 48:317-25. PubMed PMID: 24120408.

Fish JA, Chai B, Wang Q, Sun Y, Brown CT, Tiedje JM, Cole JR (2013). FunGene: the functional gene pipeline and repository. Front Microbiol. 4:291. PubMed PMID: 24101916.

Stres B, Sul WJ, Murovec B, Tiedje JM (2013). Recently deglaciated high-altitude soils of the Himalaya: diverse environments, heterogenous bacterial communities and long-range dust inputs from the upper troposphere. PLoS One. 8(9):e76440. PubMed PMID: 24086740.

Penton CR, Johnson TA, Quensen JF 3rd, Iwai S, Cole JR, Tiedje JM (2013). Functional genes to assess nitrogen cycling and aromatic hydrocarbon degradation: primers and processing matter. Front Microbiol. 4:279. PubMed PMID: 24062736; PubMed Central PMCID: PMC3775264.

Wang Q, Quensen JF 3rd, Fish JA, Lee TK, Sun Y, Tiedje JM, Cole JR (2013). Ecological patterns of nifH genes in four terrestrial climatic zones explored with targeted metagenomics using FrameBot, a new informatics tool. MBio. 4(5):e00592-13. PubMed PMID: 24045641.

Penton CR, St Louis D, Cole JR, Luo Y, Wu L, Schuur EA, Zhou J, Tiedje JM (2013). Fungal diversity in permafrost and tallgrass prairie soils under experimental warming conditions. Appl Environ Microbiol. 79(22):7063-72. PubMed PMID: 24014534.

Jin M, Bothfeld W, Austin S, Sato TK, La Reau A, Li H, Foston M, Gunawan C, LeDuc RD, Quensen JF, McGee M, Uppugundla N, Higbee A, Ranatunga R, Donald CW, Bone G, Ragauskas AJ, Tiedje JM, Noguera DR, Dale BE, Zhang Y, Balan V (2013). Effect of storage conditions on the stability and fermentability of enzymatic lignocellulosic hydrolysate. Bioresour Technol. 147:212-20. PubMed PMID: 23999256.

Rhodes AN, Fulthorpe RR, Tiedje JM (2013). Probing the functional diversity of global pristine soil communities with 3-chlorobenzoate reveals that communities of generalists dominate catabolic transformation. Appl Environ Microbiol. 79(22):6932-40. PubMed PMID: 23995940.

Trosko, James

Trosko JE (2014). Induction of iPS cells and of cancer stem cells: the stem cell or reprogramming hypothesis of cancer? Anat Rec (Hoboken). 297(1):161-73. PubMed PMID: 24293264.

Uhal, Bruce D.

Uhal BD, Nguyen H (2013). The Witschi Hypothesis revisited after 35 years: genetic proof from SP-C BRICHOS domain mutations. Am J Physiol Lung Cell Mol Physiol. 305(12):L906-11. PubMed PMID: 24142519.

Uhal BD, Dang M, Nguyen H, Dang V, Molina-Molina M, Abdul-Hafez A, Markey J, Piasecki C and Xaubet A (2013). Cell Cycle-Dependence Of ACE-2 Explains Downregulation In Idiopathic Pulmonary Fibrosis. Eur Resp J. 42(1):198-210.

Uhal B, Nguyen H, Dang V, Dang M, Gopallawa I (2013). Abrogation of ER stress-induced apoptosis of alveolar epithelial cells by angiotensin 1-7. Am J Physiol. 305(1):L33-41.

Dang M, Gu C, Jernigan K, Friderici K, Cui Y, Uhal BD (2013). Angiotensinogen promoter polymorphisms -20a>c and -6g>a predict low diffusing capacity in pulmonary fibrosis. LUNG. 191:353-360.

Upham, Brad L.

Hill T 3rd, Osgood RS, Velmurugan K, Alexander CM, Upham BL, Bauer AK (2013). Bronchoalveolar Lavage Fluid Utilized Ex Vivo to Validate In Vivo Findings: Inhibition of Gap Junction Activity in Lung Tumor Promotion is Toll-Like Receptor 4-Dependent. J Mol Biomark Diagn. 5(1). PubMed PMID: 25035812.

Shi X, Chang CC, Basson MD, Upham BL, Wei L, Zhang P (2014). Alcohol disrupts human liver stem cell/progenitor cell proliferation and differentiation. J. Stem Cell Res. Ther. 4:205.

Voice, Thomas C.

McElmurry SP, Long DT, Voice TC (2014). Stormwater dissolved organic matter: influence of land cover and environmental factors. Environ Sci Technol. 48(1):45-53. PubMed PMID: 24308690.

Wagner, James G.

Wagner JG, Kamal AS, Morishita M, Dvonch JT, Harkema JR, Rohr AC (2014). PM2.5-induced cardiovascular dysregulation in rats is associated with elemental carbon and temperature-resolved carbon subfractions. Part Fibre Toxicol. 11:25. PubMed PMID: 24885999.

Wagner JG, Birmingham NP, Jackson-Humbles D, Jiang Q, Harkema JR, Peden DB (2014). Supplementation with γ-tocopherol attenuates endotoxin-induced airway neutrophil and mucous cell responses in rats. Free Radic Biol Med. 68:101-9. PubMed PMID: 24333275.

Wagner JG, Allen K, Yang HY, Nan B, Morishita M, Mukherjee B, Dvonch JT, Spino C, Fink GD, Rajagopalan S, Sun Q, Brook RD, Harkema JR (2014). Cardiovascular depression in rats exposed to inhaled particulate matter and ozone: effects of diet-induced metabolic syndrome. Environ Health Perspect. 122(1):27-33. PubMed PMID: 24169565.

Sun L, Liu C, Xu X, Ying Z, Maiseyeu A, Wang A, Allen K, Lewandowski RP, Bramble LA, Morishita M, Wagner JG, Dvonch J, Sun Z, Yan X, Brook RD, Rajagopalan S, Harkema JR, Sun Q, Fan Z (2013). Ambient fine particulate matter and ozone exposures induce inflammation in epicardial and perirenal adipose tissues in rats fed a high fructose diet. Part Fibre Toxicol. 10:43. PubMed PMID: 23968387.

Brandenberger C, Rowley NL, Jackson-Humbles DN, Zhang Q, Bramble LA, Lewandowski RP, Wagner JG, Chen W, Kaplan BL, Kaminski NE, Baker GL, Worden RM, Harkema JR (2013). Engineered silica nanoparticles act as adjuvants to enhance allergic airway disease in mice. Part Fibre Toxicol. 10:26. PubMed PMID: 23815813.

Woolhiser, Michael R.

Marty MS, Neal BH, Zablotny CL, Yano BL, Andrus AK, Woolhiser MR, Boverhof DR, Saghir SA, Perala AW, Passage JK, Lawson MA, Bus JS, Lamb JC 4th, Hammond L (2013). An F1-extended one-generation reproductive toxicity study in Crl:CD(SD) rats with 2,4-dichlorophenoxyacetic acid. Toxicol Sci. 136(2):527-47. PubMed PMID: 24072463.

Wu, Felicia

Wu F, Mitchell NJ, Male D, Kensler TW (2014). Reduced foodborne toxin exposure is a benefit of improving dietary diversity. Toxicol Sci. 141(2):329-34. PubMed PMID: 25015663.

Wu F, Groopman JD, Pestka JJ (2014). Public health impacts of foodborne mycotoxins. Annu Rev Food Sci Technol. 5:351-72. PubMed PMID:24422587.

Yang, Chengfeng

Wang Z, Humphries B, Xiao H, Jiang Y, and Yang C (2014). MicroRNA-200b Suppresses Arsenic-transformed Cell Migration by Targeting Protein Kinase Cá and Wnt5b-Protein Kinase Cá Positive Feedback Loop and Inhibiting Rac1 Activation. Journal Biological Chemistry 289: 18373-18386.

Yang Q, Jie Z, Ye S, Li Z, Han Z, Wu J, Yang C, and Jiang Y (2014). Genetic variations in miR-27a gene decrease mature miR-27a level and reduce gastric cancer susceptibility. Oncogene 33: 193-202. PubMed PMID: 23246964.

Chen F, Li A, Gao S, Hollern D, Williams M, Liu F, VanSickle EA, Andrechek E, Zhang C, Yang C, Luo R, and Xiao H (2014). Tip30 controls differentiation of murine mammary luminal progenitor to estrogen receptor-positive luminal cell through regulating FoxA1 expression. Cell Death and Disease 5: e1242. PubMed PMID: 24853420.

Humphries B, and Yang C (2013). MicroRNAs in Cancer Invasion and Metastasis. Page 133-152. In: MicroRNAs in Toxicology and Medicine. Ed. S. Sahu. John Wiley & Sons, Ltd., of The Atrium.

Wang Z, and Yang C (2013). Body Fluid MicroRNAs as Toxicological Biomarkers. Page 343-362. In: MicroRNAs in Toxicology and Medicine. Ed. S. Sahu. John Wiley & Sons, Ltd., of The Atrium.

Zacharewski, Timothy R.

Kwekel JC, Forgacs AL, Williams KJ, Zacharewski TR (2013). o-p'-DDT-mediated uterotrophy and gene expression in immature C57BL/6 mice and Sprague-Dawley rats. Toxicol Appl Pharmacol. 273(3):532-41. PubMed PMID: 24096037.

Nault R, Forgacs AL, Dere E, Zacharewski TR (2013). Comparisons of differential gene expression elicited by TCDD, PCB126, βNF, or ICZ in mouse hepatoma Hepa1c1c7 cells and C57BL/6 mouse liver. Toxicol Lett. 223(1):52-9. PubMed PMID: 23994337.

Kopec AK, Boverhof DR, Nault R, Harkema JR, Tashiro C, Potter D, Sharratt B, Chittim B, Zacharewski TR (2013). Toxicogenomic evaluation of long-term hepatic effects of TCDD in immature, ovariectomized C57BL/6 mice. Toxicol Sci. 135(2):465-75. PubMed PMID: 23864506.

Krewski D, Andersen M, Boekelheide K, Bois K, Burgoon L, Chiu W, DeVito M, El-Masri H, Flowers L, Goldsmith, M, Hattis D, Knight D, Knudsen T, Lefew W, Paoli G, Perkins E, Rusyn I, Tan C, Teuschler L, Thomas R, Whelan M, Zacharewski T, Zeise L, Cote I (2014). Recurring Issues in Risk Assessment. Next Generation Risk Assessment: Incorporation of Recent Advances in Molecular, Computational and Systems Biology. United States Environmental Protection Agency. National Center for Environmental Assessment. Office of Research and Development. EPA/66/R-14/217F. p. 8

Zacharewski T, Cote I, Teuschler L, Burgoon L (2014). Mixtures and Nonchemical Stressors. Next Generation Risk Assessment: Incorporation of Recent Advances in Molecular, Computational and Systems Biology. United States Environmental Protection Agency. National Center for Environmental Assessment. Office of Research and Development. EPA/66/R-14/217F. p. 103

Faculty FUNDING

The CIT and its affiliated faculty maintained a longstanding tradition of external research funding with over $15 million accepted by the MSU Board of Trustees during the past fiscal year. The majority of the amounts listed here represent just one year in a multi-year award cycle, ensuring that a high level of funding for toxicology will continue in the near future.

Andrea Amalfitano

- $224,571; ER-localized aminopeptidases in ankylosing spondylitis; NIH/PHS
- $105,425; Novel vaccine targeting clostridium difficile using the adjuvant cyclic di-GMP; NIH/PHS
- $22,998; Development of a novel C.difficile vaccine; Michigan Initiative for Innovation and Entrepreneurship

Eran Andrechek

- $289,663; Dissecting Tumor Heterogeneity by Analyzing Signaling Pathway Requirements; NIH/PHS

William Atchison

- $268,651; Increasing Training of Hispanic Neuroscientists at Michigan State University (Supplement K-12 Neuroscience Workshop Training); NIH/PHS
- $97,500; Influence of Thermal Challenge on Turkey Muscle Development and Meat Quality; USDA – National Institute of Food and Agriculture
- $28,862; Purinergic neurotransmission in the gut; NIH/PHS

Leslie Bourquin

- $79,637; Food Supply Chain Management Training for China, Vietnam and Malaysia; World Bank

Stephen Boyd

- $99,912; Physicochemical controls on transport of veterinary pharmaceuticals and hormones to surface water; US Dept of Agriculture
- $171,362; Environmental Microbial and Mammalian Biomolecular Responses to AhR Ligands; NIH/PHS

John Buchweitz

- $12,492; Enhanced scope and detectability for heavy metals and POPs in DBS samples; University Research Corridor
- $17,640; Cyanide Testing; US Dept of Air Force

Steven Bursian

- $33,349; Research on Nutrition, Toxicology, Behavior and Management of Mink; Mink Farmer's Research Foundation I
- $197,338; The Toxicity and Other Adverse Impacts of Exposure to Selected Crude Oils to Gulf of Mexico Birds; Stratus Consulting
- $1,022; The effect of specific egg yolk antibodies in drinking water on the growth of pigs; Agrarian Marketing Corporation

Stephan Carey

- $16,872; Role of Oropharyngeal Flora in Esophagostomy Tube Peristomal Inflammation; American College of Veterinary Internal Medicine Foundation

Susan Ewart

- $4,000; 2014 Merial Veterinary Scholars Summer Research Program; Merial Limited
- $20,167; Short-term biomedical research training program for veterinary students; NIH/PHS
- $78,320; Increasing Diversity in Experiential Research Education at Michigan State University; National Heart Lung Blood Institute, NIH/PHS
- $88,196; Transgenerational epigenetic inheritance of allergy in a multigenerational cohort; University of Memphis

Patricia Ganey

- $62,330; Dichotomous Roles of Thrombin in Acetaminophen Hepatotoxicity; NIH/PHS
- $19,999; Prediction of Idiosyncratic, Drug-induced Liver Injury from Drug-Cytokine Interaction in Vitro; Society of Toxicology

Jay Goodman

- $3,627; The Epigenetic Mechanism of Arsenic Lung Carcinogenesis - Role of MicroRNAs; NIH/PHS
- $114,242; Environmental Microbial and Mammalian Biomolecular Responses to AhR Ligands; NIH/PHS

John Goudreau

- $258,009; The role of Parkin in selective dopamine neuronal degeneration; NATL INST NEURO DIS & STROKES
- $210,705; MSU Parkinson Disease Clinical Center; NIH/PHS
- $3,500; A Phase 2, Randomized, Double-blind, placebo-controlled, multiple dose, parallel group study to evaluate the pharmacodynamics, efficacy and safety of RM-131 administered to patients with Parkinson's Disease and chronic constipation dissatisfied with current therapy; University of Rochester

Brian Gulbransen

- $100,000; Mechanistic basis of antioxidant-mediated neuroprotection in inflammatory bowel disease: role of enteric glia; PhRMA Foundation

Jack Harkema

- $798,227; Great Lakes Air Center for Integrative Environmental Research (GLACIER); Environmental Protection Agency
- $15,581; Dichotomous Roles of Thrombin in Acetaminophen Hepatotoxicity; NIH/PHS
- $22,541; A 91-Day Oral (Dietary) Comparative Toxicity Study of 4-Methylimidazole in C57Bl/6 and B6C3F1 Mice; American Beverage Association

Syed Hashsham

- $142,802; Environmental Microbial and Mammalian Biomolecular Responses to AhR Ligands; NIH/PHS

- $82,811; Development of Field Methodology to Rapidly Detect Dehalococcoides and Dehalobacter Spp. Genes On-Site; US Dept of Army

Colleen Hegg

- $188,038; Neural stem cell susceptibility to ambient particulate matter over the lifespan; NATL INST OF HEALTH - NIH/PHS
- $76,750; Neurogenesis and chronic cannabinoid exposure; NATL INST OF HEALTH - NIH/PHS

Robert Hollingworth

- $659,658; NC Region IR4 Minor Crop Pest Management; USDA – National Institute of Food and Agriculture

A. Daniel Jones III

- $288,780; GEPR: Building and operating chemical factories: Comparative studies of biochemical pathways for defense compounds in the Solanum; National Science Foundation

Norbert Kaminski

- $158,343; THC impairment of CD4/CD8 T cell-mediated host resistance to HIV and influenza; NIH/PHS
- $163,798; Impaired B cell Activation/Differentiation via Sustained BCL6 Expression by TCDD; NIH/PHS
- $272,034; Environmental, Microbial and Mammalian Biomolecular Responses to AhR Ligands; NIH/PHS
- $114,011; Immunotoxicology of Chronic Exposure to Estrogenic Bisphenol-A; NIH/PHS

John Kaneene

- $88,488; USDA Tri-lateral Partnership; US Dept Agriculture
- $5,000; Assessment of Human and Animal Disease Surveillance Systems in Uganda; North Dakota State University

John LaPres

- $15,581; Dichotomous Roles of Thrombin in Acetaminophen Hepatotoxicity; NIH/PHS

Gina Leinninger

- $488,104; Lateral Hypothalamic Leptin Receptor-Neurotensin Neurons in Energy Balance; NIH/PHS
- $37,720; Role of Lateral Hypothalamic Neurotensin Signaling in Energy Balance and Obesity; University of Michigan

Hui Li

- $99,912; Physicochemical controls on transport of veterinary pharmaceuticals and hormones to surface water; US Dept of Agriculture
- $12,000; Uptake of pharmaceuticals by corn from soils amended with biosolids; MSU Project Green
- $7980; Contamination and removal of engineered nanoparticles on fresh produce surfaces; MSU Project Green

Keith Lookingland

- $45,531; The role of Parkin in selective dopamine neuronal degeneration; NATL INST NEURO DIS & STROKES

James Luyendyk

- $345,202; Mechanisms of xenobiotic-induced biliary inflammation and fibrosis; NIH/PHS
- $109,077; Dichotomous Roles of Thrombin in Acetaminophen Heptotoxicity; NIH/PHS
- $200,000; ¬Mechanisms coupling thrombin to fatty liver disease pathogenesis: Novel indications for dabigatran etexilate in the treatment of fatty liver disease and obesity; Boehringer Ingelheim Inc

Linda Mansfield

- $542,954; ERIN CRC: Host-microbiota-pathogen interactions govern enteric health and disease; NATL INST OF ALLERGY & INFEC DIS –NIH
- $20,165; Short-term biomedical research training program for veterinary students; NIH/PHS
- $4,000; 2014 Merial Veterinary Scholars Summer Research Program; Merial Limited

Michelle Mazei-Robison

- $100,000; Role of serum-and glucocorticoid-inducible kinase 1 in a novel model of co-morbid opiate use and mood disorders.; PhRMA Foundation

Laura McCabe

- $218,565; Mechanistic basis of probiotic prevention of osteoporosis; NIH/PHS
- $63,270; GPCR Kinase-5 in Inflammatory Bowel Disease; NIH/PHS
- $204,922; The role of the gut and bone microenvironment in T1D bone loss; NIH/PHS
- $53,040; Michigan State University Beckman Scholars Program; Beckman Arnold and Mabel Foundation

Thomas Mullaney

- $5,623; Role of Oropharyngeal Flora in Esophagostomy Tube Peristomal Inflammation; American College of Veterinary Internal Medicine Foundation
- $30,000; NAHLN-MI2013; US Dept of Agriculture
- $4,949; 2013 Classical Swine Fever Surveillance; US Dept of Agriculture
- $93,563; Bioterrorism Preparedness - Diagnostic Ctr for Population and Animal Health; MI Dept of Community Health
- $16,549; Michigan State University DCPAH VetLRN 2012; Food and Drug Administration – PHS

Cheryl Murphy

- $63,958; Cell-Free Neurochemical Screening Assays to Predict Adverse Effects in Mammals, Fish, and Birds; Regents of the University of Michigan

L. Karl Olson

- $89,454; Life Course Energy Balance and Breast Cancer Risk in Black/White Women under 50; National Cancer Institute – NIH/PHS
- $24,749; Pilot Study of a Metabolic Nutritional Therapy for the Management of Primary Brain Tumors; American Institute for Cancer Research

Nigel Paneth

- $62,962; Neonatal Biomarkers in Extremity Preterm Babies Predict Childhood Brain Disorders; Boston Medical Center
- $34,740; Data Coordinating Center for Autism & Other Developmental Disabilities: SEED I&II; Centers for Disease Control and Prevention
- $344,375; Training Program in Perinatal Epidemiology; NIH/PHS
- $12,000; The Michigan Bloodspot Environmental Epidemiology Project; Regents of the University of Michigan
- $5,372; Are Live Births Endogenous and Does it Matter?; NIH/PHS

James Pestka

- $11,051; Dietary Lipids and Silica-Accelerated Autoimmunity; National Institute of Environmental Health Sciences - NIH/PHS
- $56,850; Mechanisms and Biomarkers for Deoxynivalenol-Induced Growth Retardation; US Dept of Agriculture

N. Edward Robinson

- $131,317; Compound X for Treatment of Exacerbations of Recurrent Airway Obstruction; ZOETIS

AJ Robison

- $225,000; Transcriptional Mechanisms of Memory Formation; Whitehall Foundation

Cheryl Rockwell

- $244,086; Role of Nrf2 in immunotoxicity by food additives and environmental contaminants; NIH/PHS

Kenneth Rosenman

- $196,815; Health Care Provider Organization Outreach; Environmental Protection Agency
- $893,629; Expanded Program in Occupational Injury and Illness Surveillance; Centers for Disease Control and Prevention

Robert Roth

- $381,419; Multidisciplinary Training in Environmental Toxicology; National Institute of Environmental Health Sciences -NIH/PHS
- $109,077; Dichotomous Roles of Thrombin in Acetaminophen Hepatotoxicity; NIH/PHS
- $19,999; Prediction of Idiosyncratic, Drug-induced Liver Injury from Drug-Cytokine Interaction in Vitro; Society of Toxicology

Greg Swain

- $28,862; Purinergic neurotransmission in the gut; NIH/PHS
- $3,016; SERT KO rats are a model of gender specific visceral pain; NIH/PHS
- $76,016; Prediction of Galvanic Corrosion of Defense Materials; NAVAL RESEARCH US OFFICE OF USDN
- $20,000; Chemical Sensing Using Ultrananocrystalline Diamond; Argonne National Laboratory
- $100,000; Electrochemistry of Nanostructured Carbon Electrodes in Room-Temperature Ionic Liquids; US Office of Army Research

Brian Teppen

- $99,912; Physicochemical controls on transport of veterinary pharmaceuticals and hormones to surface water; US Dept of Agriculture
- $193,058; BHEARD Ghana Training Program; Agency for Internal Development

James Tiedje

- $58,649; The Ribosomal Database Project: Sequences and Tools for Microbial Analysis; US Dept of Energy
- $31,022; ERIN CRC: Host-microbiota-pathogen interactions govern enteric health and disease; National Institute of Allergy and Infectious Disease –NIH
- $428,406; Environmental, Microbial and Mammalian Biomolecular Responses to AhR Ligands; NIH/PHS
- $582; Practical benefits of biochar amendment to agricultural systems: Linking soil and microbial processes to economic feasibility and sustainability; University of Hawaii
- $242,363; From structure to functions: Metagenomics-enabled predictive understanding of soil microbial feedbacks to climate change; University of Oklahoma

Bruce Uhal

- $6,022; Role of Angiotensin Converting Enzyme 2 (ACE 2) in Human Alveolar Epithelial Cell and Neonatal Mice Lung Explants Injury by Hyperoxia; Sparrow Hospital

Brad Upham

- $428,407; Environmental, Microbial and Mammalian Biomolecular Responses to AhR Ligands; NIH/PHS

James Wagner

- $638,582; Great Lakes Air Center for Integrative Environmental Research (GLACIER); Environmental Protection Agency
- $15,027; A 91-Day Oral (Dietary) Comparative Toxicity Study of 4-Methylimidazole in C57BI/6 and B6C3F1 Mice; American Beverage Association

Felicia Wu

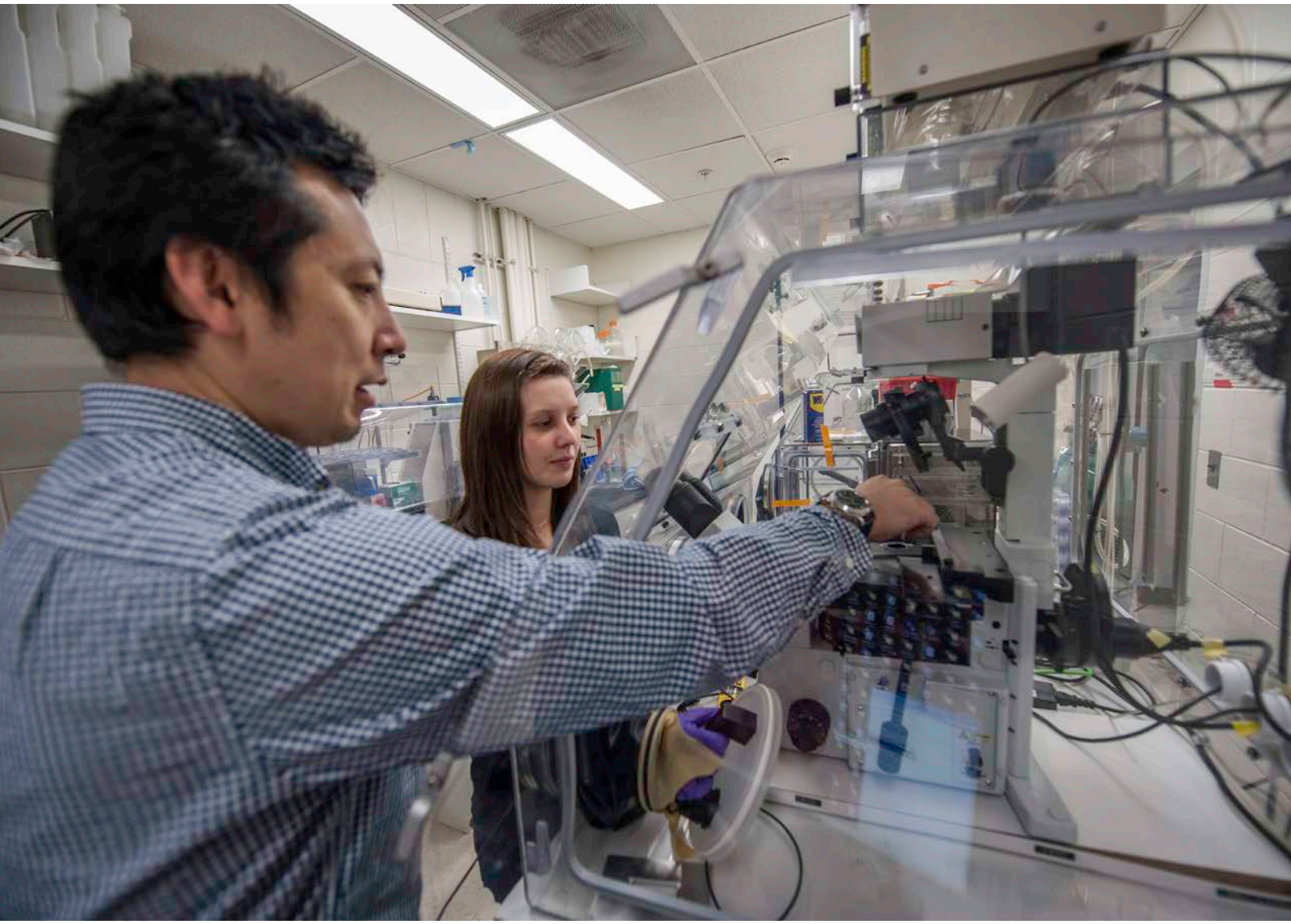
- $52,976; Integrated Management Strategies for Aspergillus and Fusarium Ear Rots of Corn; Purdue University
- $718,778; Mycotoxins as a risk factor in childhood growth impairment worldwide; Bill and Melinda Gates Foundation
- $219,570; The Effect of Aflatoxin Regulation on Global Liver Cancer Risks; NIH/PHS
- $240,074; BHEARD Uganda Training Program; CIMMYT Inc
- $235,286; Risk Assessment and Intervention Strategies for the Emerging Food Safety Threat of Ochratoxin in the United States; University of Idaho

Chengfeng Yang

- $322,851; The Epigenetic Mechanism of Arsenic Lung Carcinogenesis - Role of MicroRNAs; NIH/PHS

Timothy Zacharewski

- $142,802; Environmental, Microbial and Mammalian Biomolecular Responses to AhR Ligands; NIH/PHS



Professional Service of FACULTY

The affiliated faculty of the CIT participate in many external activities that promote the development of research and science in their chosen field. These activities include editorial boards, review groups or study sections, scientific advisory boards and committees, and officers in scientific societies.

Eran Andrechek

- Member, Department of Defense Study Section

William Atchison

- Associate Editor, Neurotoxicology
- Chair, Environmental Health Sciences Review Committee, NIEHS

Leslie Bourquin

- Chair, NSF International Global Food Safety Advisory Council
- Technical Committee Member, World Bank Global Food Safety Partnership
- Consumer Goods Forum, Global Food Safety Iniative, GFSI Technical Committee Member
- Advisory Council Member, International Food Protection Training Institute (IFPTI)
- Editorial Board, Foods Journal

Dan Bronstein

- Member, Council, Section K (Social, political and economic scrience) American Association for the Advancement of Science
- Member, Environmental Quality Committee, American Bar Association

John Buchweitz

- Member, Technical Advisory Group for Michigan Department of Environmental Quality, Generic Cleanup Criteria - Part 201 Environmental Remediation
- Member-at-large, AOAC Central Section Executive Committee
- Representative, MISOT K-12 Education Committee

Steven Bursian

- Editorial Board, Journal of Toxicology
- Editorial Board, Chemosphere
- Editorial Board, Bulletin of Environmental Contamination and Toxicology
- Member, Health Advisory Board of NSF International

Stephan Carey

- President-Elect, Veterinary Comparative Respiratory Society
- Member, Early Faculty and Fellows Subcommittee, Environmental and Occupational Health Assembly, The American Thoracic Society
- Ad Hoc Reviewer: The Veterinary Journal, Journal of Veterinary Internal Medicine, Toxicology and Applied Pharmacology

Bryan Copple

- NIH Study Section, ZRG1 DKUS-N (10) B Small Business: Digestive Sciences

Susan Ewart

- National Institutes of Health; Allergy, Immunology, and Transplantation Research Committee (AITC) reviewer, standing committee member

Patricia Ganey

- Editorial Board, Journal of Pharmacology and Experimental Therapeutics
- Editorial Board, Journal of Toxicology and Environmental Health
- Editorial Board, Toxicology
- Chair, Division of Toxicology, American Society of Pharmacology and Experimental Therapeutics
- Secretary/Treasurer, Mechanisms Specialty Section of the Society of Toxicology
- Member, Society of Toxicology Board of Publications

Jay Goodman

- Editorial Board, Toxicology
- Member, Board of Scientific Councilors, National Institute of Environmental Health Sciences
- Board of Trustees Member, International Life Sciences Institute (ILSI)
- Board of Trustees Member, ILSI Health and Environmental Sciences Institute (HESI)

John Goudreau

- Chair, COMLEX Level 2 Committee National Board of Osteopathic Medical Examiners
- Chair, Clinical Decision Making Task Force, National Board of Osteopathic Medical Examiners
- Chair, Cognitive Testing Advisory Committee, National Board of Osteopathic Medical Examiners
- Composite Committee, National Board of Osteopathic Medical Examiners
- Blue Ribbon Advisory Panel: Advancing National Board Certification Examinations, National Board of Osteopathic Medical Examiners
- COMVEX Committee, National Board of Osteopathic Medical Examiners
- NSD-B Study Section, National Institutes for Neurological Disorders and Stroke
- NIH Udall Center for Parkinson Disease Research Excellence Special Review Group
- NINDS Panel on Optimizing the Predictive Value of Preclinical Research
- Professional Advisory Board, Michigan Parkinson Foundation
- Credentialing Committee, Parkinson Study Group
- Recruitment Committee, NINDS, NET-PD FZ-ZONE Study

Jack R. Harkema

- Editorial Board, Journal of Experimental and Toxicologic Pathology
- Director, EPA Great Lakes Air Center for Integrated Environmental Research
- Member, Directors of EPA Clean Air Research Centers
- Member, Science Advisory Committee, Harvard University Clean Air Research Center, Boston, MA
- Chairperson, Science Advisory Committee, California National Primate Research Center, Davis, CA
- Member, EPA Clean Air Science Advisory Committee
- Member, Board of Scientific Advisors, National Toxicology Program, NIEHS/NIH
- Councilor, Executive Committee of the Society of Toxicologic Pathologists
- Editorial Board, Journal of Toxicologic Pathology

Syed Hashsham

- Reviewer, National Institute of Environmental Health Sciences Special Emphasis Panel, NIEHS
- Reviewer, NIH's SBIR/STTR Panel
- Member, Editorial Board, Bioterrorism and Biodefense Journal

Colleen Cosgrove Hegg

- Reviewer, NIH NIDCD Fellowship Application review
- Co-Chair, Judging, College of Veterinary Medicine Phi Zeta Research Day
- Advocate in Science, Susan G. Komen for the Cure National Panel for Grant Review
- Officer, SOT Stem Cell Specialty Section

Robert Hollingworth

- Editorial Board, Insecticide Resistance Newsletter
- Officer, Agrochemicals Division, American Chemical Society
- Member, National Research Council Panel to Review California Department of Pesticide Regulation's Risk Assessment Procedures

A. Daniel Jones

- NIH Panel, Bioengineering Sciences and Technologies, ZRG1 BST-F (80) A
- Review Panel, DOE SBIR/STTR FY 2014 Phase 1 Release 1
- External Advisory Committee, UC Davis NIEHS Superfund Basic Research Program
- Review Editor, Frontiers in Plant Metabolism and Chemodiversity

Norbert Kaminski

- President, Society of Toxicology
- NIEHS National Advisory Environmental Health Sciences Council
- Editorial Board, Toxicology
- External Advisory Committee, Oregon State University Superfund Center Grant

John Kaneene

- Member, Tanzania Partnership Program Committee
- Member, Institute of International Health Committee
- Reviewer, Engineer Research and Development Center

John LaPres

- Director, BioMolecular Sciences Recruiting Program
- Associate Editor, Toxicology Reports

Gina Leinninger

- Reviewer, Pharmacology, Biochemistry and Behavior, PLOS Genetics, Obesity, Diabetes, International Journal of Obesity, Endocrine, Endocrinology, Molecular Metabolism
- The Endocrine Society Annual Meeting Steering Committee
- Abstract Reviewer, The Obesity Society
- Early Career Reviewer, NIH - Neuroendocrinology, Neuroimmunology, Rhythms and Sleep (NNRS) Study Section

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- Associate Editor, Journal of Environmental Quality, Awarded Outstanding Associate Editor 2013-2014
- Proposal Review Panels, USDA and NSF

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- Editorial Board, Journal of Environmental Immunology and Toxicology

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- Editorial Board, Arteriosclerosis, Thrombosis and Vascular Biology
- Editorial Board, Toxicological Sciences
- Editorial Board, Journal of Biochemical and Molecular Toxicology
- Task Force on Scientific Events and Special Programs, American Society for Investigative Pathology
- Education Committee, Society of Toxicology
- Councilor, Michigan Regional Chapter of the Society of Toxicology

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- Scientific and Medical Advisory Panel Member, Melorheostosis Association
- Research Advisory Committee, Orthopedic Clinical Research Center, Ingham Regional Medical Center
- Michigan Chapter Medical Advisory Committee, Crohn's and Colitis Foundation of America
- Michigan Diabetes Research and Training Center/Trans-

lational Research Pilot and Feasibility Grants Program Advisory Council
- Research and Funding Advocacy Committee, American Society of Bone and Mineral Research (ASBMR)
- Associate Editor: Journal of Cellular Biochemistry, Molecular Biology Reports, World Journal of Diabetes
- Review Board: Journal of Pediatric Biochemistry

Cheryl Murphy

- Editorial Board, Ecotoxicology
- Scientific Advisory Panel, Federal Insecticide, Fungicide, and Rodenticide Act, EPA

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- Merit Review Panel for Endocrinology-A, Department of Veterans Affairs
- Ad Hoc Reviewer, Special Emphasis Panel, NIH/NIDDK

Nigel Paneth

- National Scientific Advisory Committee, March of Dimes Foundation
- External Advisory Committee, University of Pennsylvania MPH Program
- Scientific and Editorial Board, Supercourse in Epidemiology, University of Pittsburgh
- Scientific Advisory Group, Norwegian Mother and child Cohort (MoBa) and Danish National Birth Cohort (DNCB) combined cerebral palsy study (MOBAND)
- Member, NIH panel to review the study section structure of the "Health of the Population" Integrated Review Group of NIH CSR

Ed Robinson

- Member, Editorial advisory board, Equine Veterinary Journal
- Member, Scientific advisory Board, Animal Health Trust, Newmarket, UK

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- Councilor, Michigan Regional Chapter, SOT

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- Member, Board of Directors of the Michigan Occupational and Environmental Medical Association
- Member, Michigan State Medical Society Liason Committee with Public Health

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- Editorial Board, Toxicology and Applied Pharmacology
- Editorial Board, Journal of Toxicology and Environmental Health
- Associate Editor, Journal of Pharmacology and Experimental Therapeutics
- Member, Research Funding Committee, Society of Toxicology
- Member/Consultant, Technical Committee on the Application of Genomics to Mechanism-based Risk Assessment, ILSI, Health and Environmental Sciences Institute (HESI)
- Member, NIH Study Section: Xenobiotic and Nutrient Disposition and Action

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- Chair, American Chemistry Council, Public Health and Science Policy Sub-team, Science Integrity and Risk Assessment Working Group
- Member, of American Chemistry Council, Public Health and Science Policy Sub-team, Computational Toxicology Working Group
- Member, American Chemistry Council, Center for the Advancement of Risk Assessment Science and Policy
- Member, Board of Trustees, International Life Sciences Institute, Health and Environmental Sciences Institute
- Steering Committee Member, International Life Sciences Institute, Health and Environmental Sciences Institute, Risk21 Project
- Co-chair, International Life Sciences Institute, Health and Environmental Sciences Institute, Risk21 Project, DoseResponse sub-team
- Chair, Society of Toxicology, Continuing Education Committee
- Vice President Elect, Society of Toxicology, Molecular Biology Specialty Section
- Editorial Board, Journal of Biochemical and Molecular Toxicology
- Editorial Board, ISRN Toxicology

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- Member of the AVMA's Committee on Environmental Issues representing at AAWV and AAZW
- Member, Michigan Veterinary Medical Association's Public Health Committee and the State of Michigan's Rabies Working Group
- Manuscript Reviewer, Journal of wildlife Diseases and Journal of Zoo and Wildlife Medicine
- Planning Committee Member, Annual Michigan Veterinary Conference
- Member, Animal Welfare Committee, Binder Park Zoo, Battle Creek, MI

Brian Teppen

- NIEHS Review Panel ES-13-010: Biogeochemical Interactions Affecting Bioavailability for in situ Remediation of Hazardous Substances (R01)

James Tiedje

- National Resource Council Committee on Preparedness for Artic Ocean Oil Spills
- Center for Environmental and Agricultural Microbiology, Chr Advisory Committee
- Environmental Molecular Sciences Lab, Pacific Northwest National Laboratory, Science Advisory Committee
- Joint Genome Institute, Science Advisory Committee
- Berkeley National Laboratory, Bioscience External Science Advisory Committe
- Treasurer and Executive Committee, American Society for Microbiology
- Section Chair, National Academy of Sciences
- Hannah Chair Search in Water Science/Engineering
- MMG Search for Microbial Ecology Related to Infectious Disease
- PSM Soil Biology Search Committee
- Chair, PSM Department Advisory Committee

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- Criteria Stakeholder Advisory Group, Michigan Department of Environmental Quality
- International Symposium Committee, Gap Junction Conference

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- Councilor, Michigan Chapter of the Society of Toxicology
- Chair, In Vitro Animal Cell Science Section, Society of In Vitro Biology (SIVB)
- Councilor, Michigan Chapter of the Society of Toxicology (MISOT)
- Associate Editor, BioMed Research International and Journal of Toxicology
- Reviewer, NIEHS Study Section: P-42 Applications for Superfund Research Centers

James Wagner

- Editorial Board, Inhalation Toxicology
- Editorial Board, Particle and Fibre Toxicology
- President, Michigan Chapter, Society of Toxicology
- Member, Continuing Education Committee, Society of Toxicology
- Member, Committee for Threshold Limit Values for Chemical Substances (TLV-CS); American Conference of Governmental Industrial Hygienists (ACGIH)
- NIH Reviewer, NIH: NIEHS Superfund SRP P42, ZES1 LKB-K (S)
- EPA External Reviewer / Expert Workshop Panelist - Sulfur Oxides Integrated Science Assessment

Felicia Wu

- Area Editor for Health Risk Assessment, Risk Analysis
- Section Editor for Economics and Policy, World Mycotoxin Journal
- Consulting Editor for Risk Communication, Archives of Environmental and Occupational Health
- Member, Computational Task Force, World Health Organization (WHO) Foodborne Disease Burden Epidemiology Reference Group
- Expert Panelist, Joint FAO/WHO Expert Committee on Food Additives (JECFA)
- Chair, Communications Committee, Society for Risk Analysis

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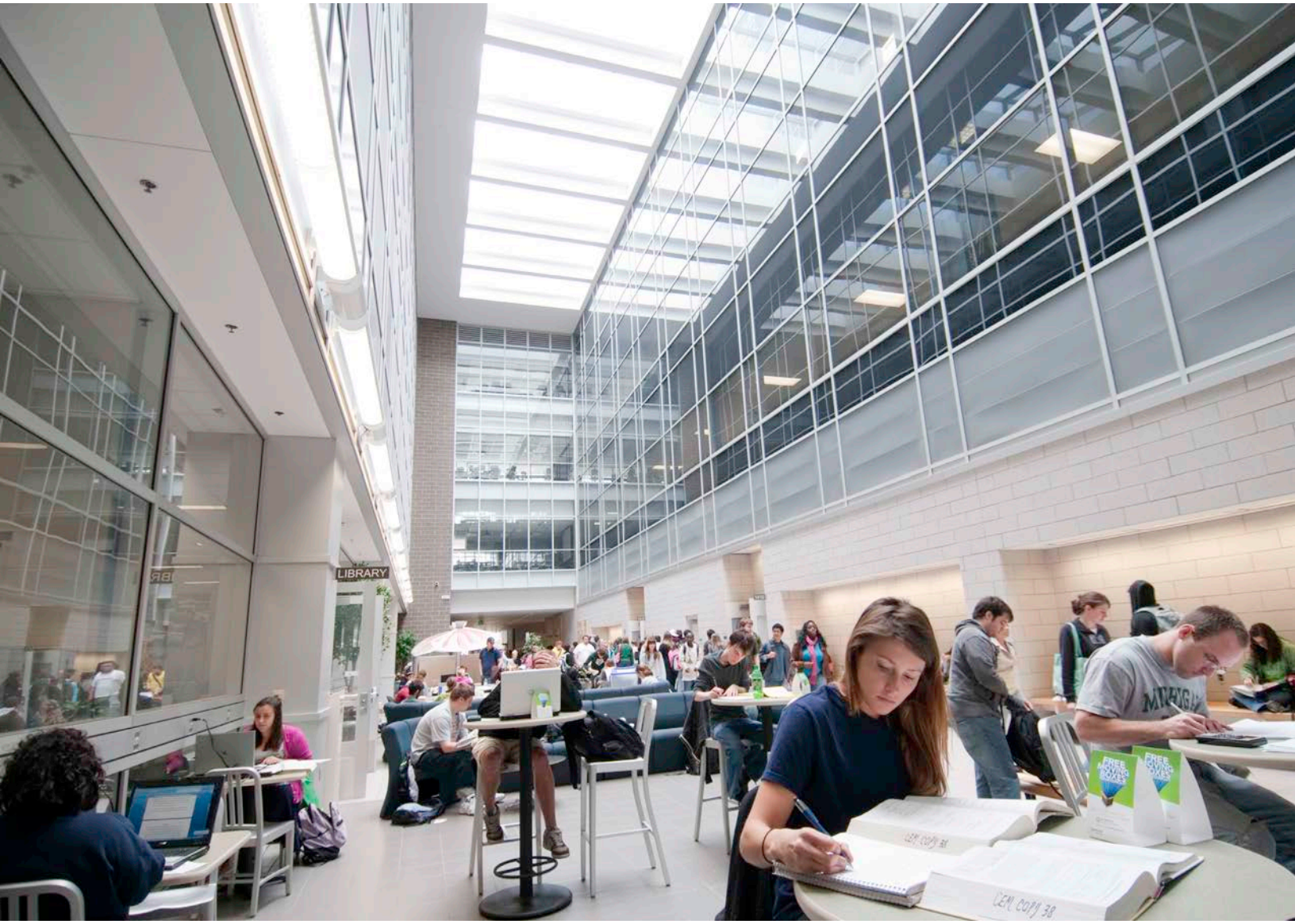
- Grant reviewer: Scientific reviewer for The Cancer ITMO of the French National Alliance for Life and Health Sciences (AVIESAN), in collaboration with the French National Cancer Institute
- Academic editor, PLOS ONE 3
- Journal manuscript reviewer: The Journal of Biological Chemistry, Current Cancer Drug Target, Molecular Cancer, PLOS ONE, Molecular Carcinogenesis, Toxicology, In Vitro Toxicology, Applied Pharmacology

Timothy Zacharewski

- Program Reviewer, Health Canada, Chemicals Management Plan (CMP) Research Program
- Program Reviewer, National Institute of Environmental Health Sciences, National Toxicology Program, NTP Technical Reports for Tetrabromobisphenol-A, Cobalt Metal Dust, Vinylidene Chloride, and Glycidamide



CIT AFFILIATES

Academic Dept. / Disciplinary Ph.D. Programs

(Participate in the CIT's EITS graduate program.)

Animal Science
Biochemistry and Molecular Biology
Cell and Molecular Biology
Chemistry
Comparative Medicine & Integrative Biology
Fisheries and Wildlife
Food Science and Human Nutrition
Forestry
Genetics
Geological Sciences
Microbiology and Molecular Genetics
Neuroscience
Pathobiology and Diagnostic Investigation
Pharmacology and Toxicology
Plant, Soil, and Microbial Sciences
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