

MSU Presentations at the 61st Annual SOT Meeting

Monday March 28th, 2022

**all times are Pacific*

3132: Poster Board - P237: Aryl Hydrocarbon Receptor (AhR) Activation by TCDD Shifts the Gut Microbiome Consistent with the Progression of Steatosis to Steatohepatitis with Fibrosis in Non-alcoholic Fatty Liver Disease

R. R. Fling, and T. Zacharewski. *Michigan State University, East Lansing, MI.*

9:00am - 10:45am*

3138: Poster Board - P265: The Impact of Kynurenine on AhR Activation in Multiple Myeloma Cell Lines

L. D. Lopez Rivera^{1,2}, J. J. Bernard², and J. D. Diedrich². ¹*Universidad Ana G. Méndez Gurabo, Gurabo, PR;* and ²*Michigan State University, East Lansing, MI.*

10:45am - 12:30pm

3155: Poster Board - P282: The Carcinogenic Potential of Lower Molecular Weight Polycyclic Aromatic Hydrocarbons in Lung

A. K. Bauer¹, S. Plottner², M. Wolff², H. U. Kafferlein², K. Velmurugan¹, and B. L. Upham³. ¹*University of Colorado Anschutz, Aurora, CO;* ²*Institute for Prevention and Occupational Medicine of the German Social Accident Insurance, Institute of the Ruhr-University Bochum, Bochum, Germany;* and ³*Michigan State University, East Lansing, MI.*

10:45am - 12:30pm

3161: Poster Board - P288: Bone Marrow Adipocyte-Induced Expression of the Aryl Hydrocarbon Receptor in Multiple Myeloma

J. D. Diedrich, C. E. Cole, and J. J. Bernard. *Michigan State University, East Lansing, MI.*

10:45am - 12:30pm

3162: Poster Board - P289: Identification of Natural Products for the Chemoprevention of Skin Cancer

N. A. Yawson, B. Karaj, and J. J. Bernard. *Michigan State University, East Lansing, MI.*

10:45am - 12:30pm

3177: Poster Board - P304: The Role of the Aryl Hydrocarbon Receptor in Adipose Tissue-Stimulated Malignant Transformation

R. Gonzalez-Pons, J. D. Diedrich, and J. J. Bernard. *Michigan State University, East Lansing, MI.*

10:45am - 12:30pm

3213: Poster Board - P348: Coupling Microphysiological and Computational Models of Thyroid Homeostasis to Test Chemicals and Mixtures

B. P. Johnson¹, Q. Zhang², L. Terrian¹, and K. Gardner¹. ¹*Michigan State University, Lansing, MI;* and ²*Emory University, Atlanta, GA.*

2:30pm - 4:15pm

3372: Poster Board - P564: Prednisone Suppresses Pathogenic Nuclear Autoantibodies in Lung but Not Plasma during Silica-Triggered Lupus Flaring in NZBWF1 Mice

L. K. Heine¹, L. D. Rajasinghe¹, Q. Z. Li², J. G. Wagner¹, R. P. Lewandowski¹, J. R. Harkema¹, and J. J. Pestka¹. ¹*Michigan State University, East Lansing, MI;* and ²*University of Texas Southwestern Medical Center, Dallas, TX.*

2:30pm - 4:15pm

3378: Poster Board - P570: Effects of the Food Additive tBHQ on OVA-Elicited Food Allergy in Juvenile Mice

Y. Jin, A. P. Boss, M. M. Janey, S. Awali, L. M. Kaiser, and C. E. Rockwell. *Michigan State University, East Lansing, MI.*

2:30pm - 4:15pm

Tuesday March 29th, 2022

3714: Poster Board - P374: Kruppel-Like Factor 6 (KLF6) and the RelA NF-kappaB Subunit as the Predominant Dimerization Partners of Endogenously Activated Aryl Hydrocarbon Receptor

D. Filipovic¹, S. Cuddapah², and S. Bhattacharya¹. ¹*Michigan State University, East Lansing, MI;* and ²*New York University Grossman School of Medicine, New York, NY.*

9:00am - 10:45am

3980: Poster Board - P672: Mentoring the Next Generation of Underrepresented Undergraduate STEM Students in the Field of Toxicology

P. Van Benthem¹, C. Santana¹, P. Lein¹, L. Van Winkle¹, R. Poppenga¹, E. Gilbreath², D. Alexander², R. Warren², R. Whittington², J. Flaws³, J. Danielson⁴, A. O'Connor⁵, C. Vengrin⁶, A. Correia⁷, B. Eidemiller⁸, and W. K. Rumbeiha¹. ¹*University of California Davis, Davis, CA;* ²*Tuskegee University, Tuskegee, AL;* ³*University of Illinois at Urbana-Champaign, Urbana, CA;* ⁴*Iowa State University, Ames, IA;* ⁵*Michigan State University, East Lansing, MI;* ⁶*International Council for Veterinary Assessment, Bismarck, ND;* ⁷*Ohio State University, Columbus, OH;* and ⁸*Society of Toxicology, Reston, VA.*

9:00am - 10:45am

3981: Poster Board - P673: DemoTox-PK: An Educational Tool for Visualizing Pharmacokinetics and Toxicodynamics Associated with Hypotheses of Idiosyncratic, Drug-Induced Liver Injury (IDILI) Etiology

R. Roth, O. Kana, D. Filipovic, and P. Ganey. *Michigan State University, East Lansing, MI.*

9:00am - 10:45am

4130: Poster Board - P834: Immunologic Assessment of Selected Cannabis-Derived Terpenes and Cannabinoids in Human Peripheral Blood Mononuclear Cells (PBMC)

R. Crawford, T. Bach, M. D. Rizzo, S. Sermet, L. K. Blevens, J. Zhou, D. Khan, and N. E. Kaminski. *Michigan State University, East Lansing, MI.*

9:00am - 10:45am

4131: Poster Board - P835: Cannabidiol (CBD) Modulates Monocyte-Derived Proinflammatory Cytokine IL-6 Secretion in Human Monocytes Activated through Toll-Like Receptors (TLRs) 1-9

S. Sermet, J. Li, A. Bach, R. B. Crawford, and N. E. Kaminski. *Michigan State University, East Lansing, MI.*

9:00am - 10:45am

4132: Poster Board - P836: Cannabidiol (CBD) Suppresses the Secretion of Proinflammatory Cytokine Interleukin-1 β (IL-1 β) in Human Monocytes through a Mechanism Independent of Vanilloid Transient Receptor Potential Channels 1 (TRPV1) and 4 (TRPV4)

B. Finn, R. Crawford, and N. Kaminski. *Michigan State University, East Lansing, MI.*

9:00am - 10:45am

4134: Poster Board - P838: Δ 9-tetrahydrocannabinol (THC) Suppresses Naïve CD8+ T Cell Differentiation and Interferon Gamma (IFN- γ) Production in Interferon Alpha (IFN- α) Primed Activation

J. Marty, R. B. Crawford, L. Blevins, and N. E. Kaminski. *Michigan State University, East Lansing, MI.*

9:00am - 10:45am

4137: Poster Board - P841: Disparate Effects of the Food Additive tert-butylhydroquinone (tBHQ) on Antibody Secretion and Expression of Cell Surface Proteins by Activated B Cells

L. M. Kaiser, and C. E. Rockwell. *Michigan State University, East Lansing, MI.*

9:00am - 10:45am

4138: Poster Board - P842: Single Cell RNA-Sequencing Elucidates Potential Gene Expression Programs That Are Dysregulated by Persistent Aryl Hydrocarbon Receptor (AHR) Signaling during Human Hematopoietic Differentiation

D. M. Isha Olive Khan¹, P. W. Karmaus², R. Crawford¹, and N. E. Kaminski¹. ¹*Michigan State University, East Lansing, MI;* and ²*NIEHS, Washington, DC.*

9:00am - 10:45am

4142: Poster Board - P846: Inhibition of Dendritic Cell Activation by the Nrf2 Activator, tBHQ

S. Awali, Y. Jin, L. M. Kaiser, and C. E. Rockwell. *Michigan State University, East Lansing, MI.*

9:00am - 10:45am

3495: Poster Board - P117: Collaborative Cross Strain CC002/Unc: A Murine Model of Ozone-Induced Nonatopic Asthma

G. J. Smith¹, A. Tovar¹, K. McFadden¹, R. M. Immormino¹, T. P. Moran¹, J. G. Wagner², J. R. Harkema², and S. N. Kelada¹. ¹*University of North Carolina at Chapel Hill, Chapel Hill, NC;* and ²*Michigan State University, East Lansing, MI.*

10:45am - 12:30pm

3842: Poster Board - P516: Exploring the Role of sEH-Inhibitors as a Potential Treatment for Parkinson's Disease in C. elegans

R. E. Gonzalez-Calderon¹, M. Sarparastzardroudia², D. Vonarx², J. Alan², and K. S. Lee². ¹*Universidad Ana G. Méndez, San Juan, PR;* and ²*Michigan State University, East Lansing, MI.*

10:45am - 12:30pm

4040: Poster Board - P739: Computational Modeling of Germinal Center Response and Its Disruption by Environmental Chemicals

D. P. Mu¹, N. E. Kaminski², and Q. Zhang³. ¹*Montgomery Blair High School, Silver Spring, MD;* ²*Michigan State University, East Lansing, MI;* and ³*Emory University, Atlanta, GA.*

10:45am - 12:30pm

4044: Poster Board - P743: A Flexible Physiologically Based Pharmacokinetic (PBPK) Model for Mixtures of Dioxin-Like Compounds

R. Liu¹, T. R. Zacharewski², R. B. Conolly³, and Q. Zhang⁴. ¹*Lower Merion High School, Ardmore, PA;* ²*Michigan State University, East Lansing, MI;* ³*Ramboll US Corp, Monroe, LA;* and ⁴*Emory University, Atlanta, GA.*

10:45am - 12:30pm

4046: Poster Board - P745: A Negative Feedback Loop and Transcription Factor Cooperation Regulate Zonal Gene Induction by 2, 3, 7, 8-tetrachlorodibenzo-p-dioxin in the Mouse Liver

Y. Yang, D. Filipovic, and S. Bhattacharya. *Michigan State University, East Lansing, MI.*

10:45am - 12:30pm

4067: Poster Board - P766: Generative Deep Learning of the Single Cell-Dose Response of 2,3,7,8 Tetrachlorodibenzo-p-dioxin in Mouse Liver

O. Z. Kana, R. Nault, T. R. Zacharewski, and S. Bhattacharya. *Michigan State University, East Lansing, MI.*

10:45am - 12:30pm

4083: Poster Board - P783: Network of miRNAs Regulating Inflammatory and Fibrotic Responses in Sulfur Mustard-Induced Skin Injuries in Mice

N. Mishra¹, R. Prasad¹, L. Saba¹, N. Tewari-Singh², C. Agarwal¹, and R. Agarwal¹. ¹University of Colorado Anschutz Medical Campus, Aurora, CO; and ²Michigan State University, East Lansing, MI.

10:45am - 12:30pm

4089: Poster Board - P789: Apoptosis and DNA Damage from Phosgene Oxime Cutaneous Exposure in C57BL/6 Mice

O. Madadgar¹, D. Goswami¹, S. Singh¹, C. Croutch², R. Agarwal³, and N. Tewari-Singh¹. ¹Michigan State University, East Lansing, MI; ²MRIGlobal, Kansas City, MO; and ³University of Colorado Anschutz Medical Campus, Aurora, CO.

10:45am - 12:30pm

4090: Poster Board - P790: Elucidating the Role of the NRF2 Pathway in Nitrogen Mustard-Induced Toxicity in Mouse Epidermal Skin Cells

R. Kerin¹, H. Wright¹, F. Fuertes¹, A. Monson², S. Sharma¹, S. Singh¹, D. Goswami¹, O. Madadgar¹, S. Lundback¹, C. Rockwell¹, K. Liby¹, and N. Tewari-Singh¹. ¹Michigan State University, East Lansing, MI; and ²University of Pittsburgh, Pittsburgh, PA.

10:45am - 12:30pm

4093: Poster Board - P793: Role of Mast Cells in Mediating Phosgene Oxime-Induced Skin Toxicity in a Mouse Model

D. G. Goswami¹, S. K. Singh¹, O. Madadgar¹, P. Anantharam², C. R. Croutch², E. L. Noland¹, R. Agarwal³, J. Brown³, and N. Tewari-Singh¹. ¹Michigan State University, East Lansing, MI; ²MRIGlobal, Kansas City, MO; and ³University of Colorado Denver, Aurora, CO.

10:45am - 12:30pm

4095: Poster Board - P795: Dosing Frequency-Dependent Effect of Dexamethasone Treatment on Sulfur Mustard-Induced Corneal Injuries in Rabbit Ocular In Vivo Model

N. Mishra¹, R. Kant¹, K. Kandhari¹, N. Tewari-Singh², P. Anantharam³, C. R. Croutch³, M. B. Pantcheva¹, J. M. Petrash¹, C. Agarwal¹, and R. Agarwal¹. ¹University of Colorado Anschutz Medical Campus, Aurora, CO; ²Michigan State University, East Lansing, MI; and ³MRIGlobal, Kansas City, MO.

10:45am - 12:30pm

4096: Poster Board - P796: Investigation of the Role of the Nrf2 Pathway in Chemical-Induced Toxicity in Human Corneal Epithelial Cells

H. N. Wright, D. Goswami, A. Roney, R. Kerin, K. Liby, and N. Tewari-Singh. Michigan State University, East Lansing, MI.

10:45am - 12:30pm

4105: Poster Board - P805: Lung Injury following Dermal Phosgene Oxime Exposure in SKH-1 Hairless Mice

M. G. Godziela¹, D. G. Goswami¹, S. K. Singh¹, C. R. Croutch², J. Brown³, J. Wagner¹, J. Harkema¹, and N. Tewari-Singh¹. ¹Michigan State University, East Lansing, MI; ²MRIGlobal, Kansas City, MO; and ³University of Colorado Denver, Aurora, CO.

10:45am - 12:30pm

Wednesday March 30th, 2022

SPC Highlights Emerging Scientists: Immunotoxicity

Chair: Dori Germolec, NIEHS/NTP

Co-Chair: Cheryl Rockwell, Michigan State University

8:00am - 10:15am

2042: Dietary Omega-Fatty Acid Prevents Silica-Triggered Autoimmune Disease in Adult Lupus-Prone Mice

L. K. Heine, T. Scarlett, J. G. Wagner, R. P. Lewandowski, J. J. Pestka, and J. R. Harkema. *Michigan State University, East Lansing, MI.*

8:00am - 8:15am

4379: Poster Board - P333: A Simplified Rate Independent Measure of QT Prolongation in Primates Tested Using Body Temperature as the Positive Control

D. Leishman¹, M. Bailie², N. Ether³, and A. Lauver³. ¹*Eli Lilly and Company, Indianapolis, IN*; ²*INDS Inc., Ann Arbor, MI*; and ³*Michigan State University, East Lansing, MI.*

9:00am - 10:45am

4386: Poster Board - P340: Development of High-Throughput Metabolically Competent Vascular Toxicity Assay

J. A. Jimenez-Torres¹, C. Z. Yang¹, and B. P. Johnson^{2,1}. ¹*Onexio Biosystems LLC, Austin, TX*; and ²*Michigan State University, Lansing, MI.*

9:00am - 10:45am

4387: Poster Board - P341: The Positive Control You Never Knew You Had in Every Primate QTc Study?

D. Leishman¹, and A. Lauver². ¹*Eli Lilly and Company, Indianapolis, IN*; and ²*Michigan State University, East Lansing, MI.* Sponsor: M. Bailie

9:00am - 10:45am

1205: Navigating the Risk Landscape: How to Combat Misinformation with Science

A. Bernstein. *Michigan State University, East Lansing, MI.*

9:20am - 9:45am

1181: Applications of Single Cell Transcriptomics in Dose-Response Assessments of the Effects of Dioxin

R. Nault. *Michigan State University, East Lansing, MI.*

9:30am - 10:00am

2050: Activation of Nrf2 by tBHQ Promotes NK Cell Maturation, while Concurrently Inhibiting Activation and Expression of Effector Molecules

A. P. Boss, E. M. Gardner, and C. E. Rockwell. *Michigan State University, East Lansing, MI.*

10:00am - 10:15am

4398: Poster Board - P396: Characterizing the Impact of Simvastatin on Aryl Hydrocarbon Receptor-Mediated Liver Injury Utilizing Single-Nuclei RNA Sequencing

A. Jurgelewicz, R. Nault, T. R. Zacharewski, and J. J. LaPres. *Michigan State University, East Lansing, MI.*

10:45am - 12:30pm

4401: Poster Board - P399: Canonical Activation of Protease-Activated Receptor-1 Drives Experimental Liver Fibrosis

L. G. Poole¹, H. M. Cline-Fedewa¹, J. H. Griffin², and J. P. Luyendyk¹. ¹*Michigan State University, East Lansing, MI*; and ²*Scripps Research Institute, La Jolla, CA*.

10:45am - 12:30pm

4406: Poster Board - P404: 2,3,7,8-Tetrachlorodibenzo-p-dioxin Inhibits Hepatic Acetyl-CoA Metabolism Despite AMPK Activation

N. A. Zacharewski, G. N. Cholico, R. R. Fling, K. A. Fader, R. Nault, and T. Zacharewski. *Michigan State University, East Lansing, MI*.

10:45am - 12:30pm

4411: Poster Board - P409: Macrophage Receptor with Collagenous Structure (MARCO) Limits Acetaminophen-Induced Liver Injury

A. Fournier, L. G. Poole, Z. Wei, H. M. Cline-Fedewa, and J. P. Luyendyk. *Michigan State University, East Lansing, MI*.

10:45am - 12:30pm

4413: Poster Board - P411: Intronic Dioxin Response Element Regulates TCDD-Induced Pkm2 Isoform Expression to Enhance Antioxidant Defenses

K. Orlowska, R. Nault, and T. R. Zacharewski. *Michigan State University, East Lansing, MI*.

10:45am - 12:30pm

4417: Poster Board - P415: Thrombin-Catalyzed Fibrin Polymerization Controls Fibrin (ogen) Solubility Dynamics in Early Acetaminophen Hepatotoxicity

Z. Wei¹, K. Baker¹, D. Groeneveld¹, L. Poole¹, H. Cline-Fedewa¹, M. Flick², and J. Luyendyk¹. ¹*Michigan State University, East Lansing, MI*; and ²*University of North Carolina at Chapel Hill, Chapel Hill, NC*.

10:45am - 12:30pm

4462: Poster Board - P465: Long Chain Omega-3 Fatty Acid Supplementation and Soluble Epoxide Hydrolase Inhibition Suppress Triggering of Glomerulonephritis by Rough Lipopolysaccharide in Lupus-Prone NZBWF1 Mice

O. K. Favor, P. S. Chauhan, J. G. Wagner, R. P. Lewandowski, J. R. Harkema, J. P. Pestka, and K. S. Lee. *Michigan State University, East Lansing, MI*.

10:45am - 12:30pm

4495: Poster Board - P501: Effects of Developmental Pesticide Exposure on Epigenetic Aging in the Mouse Midbrain

J. Kochmanski, N. C. Kuhn, S. L. Boyd, and A. I. Bernstein. *Michigan State University, Grand Rapids, MI*.

10:45am - 12:30pm

4649: Poster Board - P695: Development of FAIRTox, an Interactive R-Based Application for the Exploration, Visualization, and Re-analysis of Toxicogenomic Data

J. Dodson, R. Nault, and T. Zacharewski. *Michigan State University, East Lansing, MI*.

10:45am - 12:30pm

4688: Poster Board - P740: A Computational Model to Predict Genome-Wide Binding Overlap of the Transcription Factors BMAL1 and Aryl Hydrocarbon Receptor (AhR)

D. K. Marri¹, S. Bhattacharya¹, and S. Tischkau². ¹*Michigan State University, East Lansing, MI*; and ²*Southern Illinois University School of Medicine, Springfield, IL*.

2:30pm - 4:15pm

4698: Poster Board - P750: Application of Spatial Transcriptomics to Investigate Disruption of Hepatic Zonation in 2,3,7,8-tetrachlorodibenzo-p-dioxin-Elicited Progression of Steatosis to Steatohepatitis with Fibrosis

R. Nault, and T. Zacharewski. *Michigan State University, East Lansing, MI.*

2:30pm - 4:15pm

4699: Poster Board - P751: 2,3,7,8-Tetrachlorodibenzo-p-dioxin Alters Urinary Metabolite Levels following AhR-Mediated Hepatic Metabolic Reprogramming

W. J. Sink¹, R. R. Fling¹, A. Yilmaz², S. F. Graham², and T. Zacharewski¹. ¹*Michigan State University, East Lansing, MI; and* ²*Oakland University William Beaumont School of Medicine, Rochester, MI.*

2:30pm - 4:15pm

4700: Poster Board - P752: Development of a Bayesian Single-Cell RNAseq Differential Gene Expression Test for Dose-Response Study Designs

S. Saha¹, R. Nault¹, S. Bhattacharya¹, J. Dodson¹, S. Sinha², T. Maiti¹, and T. Zacharewski¹. ¹*Michigan State University, East Lansing, MI; and* ²*Texas A&M University, College Station, TX.*

2:30pm - 4:15pm

4703: Poster Board - P755: Dose-Dependent Single-Nuclei RNAseq Evaluation of 2,3,7,8-tetrachlorodibenzo-p-dioxin-Elicited Progression of Nonalcoholic Fatty Liver Disease (NAFLD)-Like Pathologies

T. Zacharewski¹, S. Saha¹, S. Bhattacharya¹, S. Sinha², T. Maiti¹, and R. Nault¹. ¹*Michigan State University, East Lansing, MI; and* ²*Texas A&M University, College Station, TX.*

2:30pm - 4:15pm

4708: Poster Board - P760: Single-Nuclei RNA Sequencing Analysis of Cell-Specific Gene Expression Responses to 2,3,7,8-tetraclorodibenzo-p-dioxin (TCDD) in the C57BL/6 Liver

G. N. Cholico, R. Nault, and T. Zacharewski. *Michigan State University, East Lansing, MI.*

2:30pm - 4:15pm

4805: Poster Board - P870: The “Best” QT Correction You Are Not Using?

N. Ether¹, M. Bailie², D. Leishman³, and A. Lauver¹. ¹*Michigan State University, East Lansing, MI;* ²*INDS Inc., Ann Arbor, MI; and* ³*Eli Lilly and Company, Indianapolis, IN.*

2:30pm - 4:15pm

A Case Study for Making Research Data FAIR

R. Nault. *Michigan State University, East Lansing, MI.*

3:05pm - 3:30pm