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**EDUCATION**

**PhD** Molecular and Environmental Toxicology, University of Wisconsin-Madison, 2013

**DVM** School of Veterinary Medicine, University of Wisconsin-Madison, 2008

**MS** Marine Biology, University of Alaska-Fairbanks, 2001

**BS** Biology and Chemistry, Cleveland State University, Summa Cum Laude, 1997

**PROFESSIONAL EXPERIENCE**

**Graduate Research Assistant**, Institute of Marine Science, University of Alaska-Fairbanks. 1997 – 2001. Principal Advisor: F. Gerald Plumley, PhD

**Research Assistant.** Nicholas School of the Environment: Marine Laboratory, Duke University, 1998. Principal Advisor: Daniel Rittschof, PhD

**Research Specialist**,Department of Pediatrics, UW-Madison School of Medicine and Public Health, 2001 – 2003. Principal Advisor: Michael J. MacDonald, MD

**Lab Technician**, Department of Oncology, UW-Madison School of Veterinary Medicine, 2004 – 2005. Principal Investigator: David M. Vail, MS, DVM

**Project Assistant**, Department of Psychiatry, UW-Madison School of Medicine and Public Health, 2005 – 2007. Principal Investigators: Chiara Cirelli, MD, PhD and Giulio Tononi, MD, PhD

**Veterinary Extern**,Wisconsin Department of Agriculture, Trade, and Consumer Protection, 2007 – 2008. Principal Advisors: Myron Kebus, MS, DVM and Michael Collins, DVM, PhD, DACVM

**Assistant Researcher**,Department of Surgical Sciences, UW-Madison School of Veterinary Medicine, 2008 – 2009. Principal Advisors: Kurt K. Sladky, MS, DVM, DACZM and Stephen M. Johnson, MD,PhD

**Post-Doctoral Trainee**,UW-MadisonMolecular and Environmental Toxicology Center, 2009 – 2013. Principal Advisors: Richard E. Peterson, PhD and Warren Heideman, PhD; Advisory Committee: Charles Czuprynski, PhD, Christopher A. Bradfield, PhD and Marie Pinkerton, DVM, DACVP

**Assistant Scientist**, UW-Madison School of Pharmacy and Department of Oncology, 2013 –2016. Principal Advisor: Christopher A. Bradfield, PhD

**Assistant Professor**, Institute of Environmental Health Sciences and Department of Pharmacology-School of Medicine, Wayne State University, 2016-present.

**Member**, Center for Urban Responses to Environmental Stressors, Wayne State University, 2016-present.

**Adjunct Professor**, Environmental and Civil Engineering, Wayne State University, 2016-2021.

**Adjunct Professor**, Pharmaceutical Sciences, College of Pharmacy, Wayne State University, 2018-2021.

**Adjunct Associate Professor**, Institute of Environmental Health Sciences and Department of Pharmacology-School of Medicine, Wayne State University, 2021-present.

**Associate Professor**, Department of Environmental and Global Health, University of Florida, 2021-present.

**National Committees and Review Boards:**

2013-2015 Postdoctoral Representative for Society of Toxicology, Clinical and Translational Sciences

2016, 2019 Reviewer, NIH/NIEHS funded Center for Translational Environmental Health Research Texas A&M University, competitive pilot project grants

2016 Reviewer, EXITO project (Enhance Cross- disciplinary Infrastructure Training at Oregon) NIH funded program, pilot project grants

2017-2019 Councilor, Michigan Society of Toxicology

2017-2020 Reviewer, NIH/NIEHS funded Center for Environmental Genetics at the University of Cincinnati, pilot project grants

2019 Reviewer, New York SeaGrant Technical Grant Review Panel

2020 *Ad. Hoc*. Reviewer (Feb, June, October) NIH, Systemic Injury by Environmental Exposures/SIEE. Washington, DC

2020 *Ad. Hoc.* ReviewerNSF Physiological Mechanisms and Biomechanics Program, Division of Integrative Organismal Systems.

2020 *Ad. Hoc*. Reviewer (October) NIH NIEHS, Career Development in K Applications panel

2021 *Ad. Hoc*. Reviewer (March) NIH NIEHS, Special Emphasis Panel

2021 *Ad. Hoc*. Reviewer (October) NIH, Systemic Injury by Environmental Exposures/SIEE. Washington, DC

2022-2023 *Standing member*. NIH, Systemic Injury by Environmental Exposures/SIEE. Washington, DC

2022 Research Interest Group leader, Zebrafish Disease Models Society, international society

2023 *Standing member*. NIH, Environmental Determinants of Disease/EDD. Washington, DC

2023 Vice-Chair, Society of Environmental Toxicology and Chemistry Inclusion and Diversity Committee

2023 Committee member, Society of Toxicology Faculty United for Toxicology Undergraduate Recruitment and Education (FUTURE)

2023 Counselor, Society of Toxicology Out Toxicologist and Allies Special Interest Group

**International Committees and Review Boards:**

2019-presentInternational Joint Commission’s Stressor Interactions working group member

**University Committees and service:**

2016-2021 WSU Institutional Animal Care and Use Committee, scientific member and veterinary member

2016-2018 Pharmacology seminar series, co-chair

2016-2021 Genomics@Wayne organizing committee

2016-2021 WSU Faculty liaison for the Men’s and Women’s Swimming and Diving Team

2017-2018 Institute of Environmental Health Sciences, Salary Merit Review Committee

2017-2019 Department of Pharmacology, Salary Merit Review Committee

2017-2021 Member, Wayne State Chemistry Biology Interface workgroup

2020 Panel Member, Graduate and Postdoctoral Research Symposium, Pathways to Careers in Scholarship and Research

2020- 2021 Member, WSU School of Medicine Research Development Committee

2020-2021 Chair, Department of Pharmacology PhD recruitment and admissions committee

2022-2023. Environmental and Global Health seminar series, co-chair

2022-present Environmental and Global Health faculty recruitment committee

2022-present College of Public Health and Health Professions P&T committee member

**Community Engagement:**

2017-2019 Lecture and hands-on lab tour for Detroit high school students. Green Door Initiative, summer program

2018 Speaker and virtual tour, Ben Carson High School science fair winners

2018 Speaker, Americore students in Detroit sponsored by Green Door Initiative

2019 Speaker at CURES Community Advisory Board meeting

2019 Meeting and briefing with US Senator Debbie Stabenow

2019 Speaker, Greening of Detroit Annual event

2019 TEDX Detroit talk, “Contaminant Boomerang”

2019 Interview, Detroit Daily

2019 Interview, PBS Great Lakes Now episode on Fatbergs

2019 Interview, PBS Great Lakes Now and One Detroit episode on contaminants in the Detroit River and zebrafish research

2020 Interview, Good Life Detroit blog, January 2020

2020 Interview, Atlas Obscura interview for the MiSci Center fatberg exhibit

2020 Lecture and hands-on lab tour for Kennedy Middle School students, national STEM competition team

2020 Interview, WAYN Radio news talk show called *State of Wayne*

2020 Panel Member, Green Detroit, “PFAS in Michigan” (virtual)

2021 Panel Member, National Cancer Prevention Workshop (virtual)

2022 Panel Member, Cox Science Center, Everglades awareness and Willoughby expedition

2022 Multiple interviews for the Everglades Willoughby expedition completion for national, university and local news outlets including USA Today, UF Explore, and UF

2023 Lecture, National Scouts Organization; Super Nova presentation on the scientific method

2023 Lecture, Waterkeepers Association National Annual Meeting

2023 Public lecture, Orlando Science Museum, Everglade’s research results for the Florida chapter of the Explorer’s club

**Editorial Boards and Manuscript Reviews:**

2017-present Associate Editor, Frontiers in Genetics, section Toxicogenomics

2017-present Review Editor, Frontiers of Epigenomics and Epigenetics

2023 Guest Editor, Toxics, Special Issue “Developmental Exposure to Environmental Contaminants”

Manuscript Reviewer for various journals (in alphabetical order): Aquatic Toxicology, Chemosphere,

Cerebellum, Comparative Biochemistry and Physiology, Current Opinions in Toxicology, Ecotoxicology, Ecotoxicology and Environmental Safety, Environmental Epigenetics, Environmental Health Perspectives, Epigenetics Insights**,** Food and Chemical Toxicology, International Journal of Toxicology, JEZ Part B: Molecular and Developmental Evolution, Journal of the American Association for Laboratory Animal Science, Journal of Developmental Origins of Health and Disease, JoVE, Plos One, Systems Biology in Reproductive Medicine, Toxicological Sciences, Zebrafish Journal

**Major Professional Societies:**

2008-present American Veterinary Medical Association

2011-present Society of Toxicology

2012-present Society of Toxicology, Comparative and Veterinary Specialty Section

2012-present Society of Toxicology, Reproductive and Developmental Toxicology Specialty Section

2012-present Society of Toxicology, Clinical and Translational Sciences Specialty Section

2012-2017 Midwest Regional Chapter - Society of Toxicology,

2014-2016 Endocrine Society

2017-present Society of Environmental Toxicology and Chemistry

2017-present Developmental Origins of Health and Disease Society

2017-2021 American Association for Laboratory Animal Science

2017-2021 Michigan Chapter - Society of Toxicology

**HONORS AND AWARDS**

2022 International Global Fellow, University of Florida

2019 Wayne State University School of Medicine’s Research Excellence Award in Basic Science

2018 Early Stage Investigator Poster Presentation Award, NIEHS EHSCC Meeting (2018)

2015 Invited speaker at the trans-NIH Transgenerational Inheritance Workshop Invited panelist for NIH One Health Workshop

2014 Awardee for The Burroughs Wellcome Fund Workshop, Merial-NIH Veterinary Scholar Symposium

2013 Young Investigator Award, Midwest Chapter - Society of Toxicology,

2009-2011 NIEHS/NIH Postdoctoral Fellow, UW-Molecular and Environmental Toxicology Center

2007 Completed the competitive AquaVet Program, University of Pennsylvania and Cornell University

2007 Career Exploration Veterinary Externship Award

1994-1997 NCAA All-American Scholar Collegiate Award

**PUBLICATIONS**

Connell M, Meyer DN, Haimbaugh A, **Baker TR**. 2023. Single cell examination of reproductive toxicity of toxicant exposure in zebrafish. Current Opinions in Toxicology. *In press.*

**Baker TR**, and Meyer DN. 2023. Multi- and Transgenerational Health Effects of Exposure to Toxicants in Fish. Toxicology of Fishes. Second Edition, CRC Press. *In press*.

Connell M, Wu CC, Blount JR, Haimbaugh A, Kintzele EK, BanerjeeD, Baker BB, and **BakerTR**. 2023. Adult-onset transcriptomic effects of developmental exposure to benzene in zebrafish (*Danio rerio*): Evaluating a VOC of concern. International Journal of Molecular Sciences. *In review*.

Siddiqua Z, Akemann C, Meyer DN, Wahls A, Gurdziel K, Mahaja A, Dobry PW, Joshi R, McElmurry SP, Kashian DR, **Baker TR**, Pitts DK. 2023. Detection of endocrine disrupting chemicals in Danio rerio and Daphnia pulex: Step-two, transcriptomics. Ecotoxicology and Environmental Safety. *In review.*

Wu CC, Meyer DN, Banerjee D, Paquette A, Kintzele E, Vo B, **Baker TR.** 2023. Effects of Pb-induced Transciptomic and Phenotypic Alterations in the Aged Populations. *In review*.

George SE, Baker BB, **Baker TR**. 2023. Nonlethal detection of PFAS bioaccumulation and biomagnification within fishes in an urban-and wastewater-dominant Great Lakes watershed. Environmental Pollution. 321:121123.

Pedersen AF, Vasquez AA, Steis Thorsby J, Gorrell M, Petriv AM, Miller CJ, **Baker TR**. 2022. Sewage Transport Volumes and Physical Degradation Rates of Personal Care Wipes. JAWRA Journal of the American Water Resources Association. 6:1421-32.

Stietz KK, **Baker TR**, Plavicki J, editors. Developmental Exposure to Environmental Contaminants. MDPI-Multidisciplinary Digital Publishing Institute; 2022 Dec 16.

Haimbaugh A, Wu CC,, Akemann C,, Meyer DN,, Connell M,, Abdi M,, Khalaf A,, Johnson D, **Baker TR**. 2022. Multi-and Transgenerational Effects of Developmental Exposure to Environmental Levels of PFAS and PFAS Mixture in Zebrafish (Danio rerio). Toxics. 10(6):334.

Wu CC, Blount JR, Haimbaugh A, Heldman S, Shields JN, **Baker TR**. 2022. Evaluating Phenotypic and Transcriptomic Responses Induced by Low-Level VOCs in Zebrafish: Benzene as an Example. Toxics. 10(7):351.

Haimbaugh A, Akemann C, Meyer D, Gurdziel K, **Baker TR**. 2022. Insight into 2, 3, 7, 8-tetrachlorodibenzo-p-dioxin-induced disruption of zebrafish spermatogenesis via single cell RNA-seq. PNAS nexus. 1(3):pgac060.

Phillips J, Haimbaugh AS, Akemann C, Shields JN, Wu CC, Meyer DN, Baker BB, Siddiqua Z, Pitts DK, **Baker TR**. 2022. Developmental phenotypic and transcriptomic effects of exposure to nanomolar levels of 4-nonylphenol, triclosan, and triclocarban in zebrafish (Danio rerio). Toxics. 10(2):53.

Haimbaugh A, Meyer DN, Akemann C, Gurdziel K, **Baker TR.** 2022. Comparative toxicotranscriptomics of single cell RNA-Seq and conventional RNA-Seq in TCDD-exposed testicular tissue. Frontiers in Toxicolgenomics, 4:821116. doi: 10.3389/ftox.2022.821116. PMID: 35615540; PMCID: PMC9126299.

Wu CC, ConnellM, Zarb A, Akemann C, Morgan S, McElmurry SP, Love NG, **Baker TR**. 2022. Point-of-Use carbon-block drinking water filters change gut microbiome of larval zebrafish. *Environmental Microbiology Reports.* [DOI] 10.1111/1758-2229.13077.

Blount JR, Shields JN, Akemann C, Wu CC, Baker BB, Siddiqua Z, Meyer DN, Hajazi N, Tolbert Z, PittsDK, and **Baker TR**. 2021. Phenotypic and transcriptomic effects of developmental exposure to

nanomolar levels of pesticides in zebrafish. Environmental Advances*. 7(100151).*

BakerBB, HaimbaughAS, SperoneFG, JohnsonDM, **BakerTR**. 2022. Persistent contaminants of emerging concern in a Great Lakes urban-dominant watershed.  *Journal of Great Lakes research, 48*, 171-182. doi: 10.1016/j.jglr.2021.12.001.

Phillips J, Akemann C, Shields JN, Wu CC, Meyer DN, Baker BB, Pitts DK, **Baker TR**. 2021. Developmental phenotypic and transcriptomic effects of exposure to nanomolar levels of metformin in zebrafish. Environmental Toxicology and Pharmacology. 1;87:103716.

Herroon MK, Mecca S, Haimbaugh A, Garmo LC, Rajagurubandara E, Todi SV, **Baker TR**, Podgorski I. 2021. Adipocyte-driven unfolded protein response is a shared transcriptomic signature of metastatic prostate carcinoma cells. Biochimica et Biophysica Acta (BBA)-Molecular Cell Research. 1868(11):119101.

Shahab M, Rosati R, Meyers D, Sheilds J, Crofts E, **Baker TR**, Jamesdaniel S. 2021. Cisplatin-induced hair cell loss in zebrafish neuromasts is accompanied by protein nitration and Lmo4 degradation. Toxicology and Applied Pharmacology, 410:115342.

Reddy LNA, Monshi M, Siddiqua Z, Shields J, Alame K, Wahls A, Akemann C, Meyer DN; CroftsEJ; Saad F; El-Nachef J, Antoon M, Nakhle R, HijaziN, Hamid M, Gurdziel K, McElmurry SP, Kashian DR, **Baker TR**, David K. Pitts. 2021. Detection of endocrine disrupting chemicals in Danio rerio and Daphnia pulex: Step-one, behavioral screen. Chemosphere.271:129442.

Miller CJ, Runge-MorrisM, Cassidy-BushrowAE, StraughenJK, DittrichTM, **BakerTR**, PetrielloMC, Mor G, Ruden D, O’LearyB, TeimooriS, Tummala C, HeldmanS, Agarwal M, Roth K, Yang Z,Baker  BB. 2020. A review of volatile organic compound contamination in post-industrial urban centers: reproductive health implications using a Detroit lens. Int J Environ Res Public Health; 17(23), 8755; doi.org/10.3390/ijerph17238755.

Wu CC, Shields JN, Akemann C, Meyer D, Connell M, Baker BB, Pitts DA, **Baker TR**. 2020. Phenotypic and transctiptomic effects of developmental exposure to nanomolar levels of estrone and bisphenol A in zebrafish. Science of the Total Environment. doi.org/10.1016/j.scitotenv.2020.143736.

Akemann C, Meyer DN, Gurdziel K, and **Baker TR**. 2020. TCDD induced multi- and transgenerational changes in the methylome of male zebrafish gonads. Environmental Epigenetics, Vol 6, Issue 1

Pedersen AF, MeyerDN (co-first author), PetrivAV, SotoAL, ShieldsJN, AkemannC, BakerBB, TsouW, Zhang Y, and **BakerTR**. 2020. Nanoplastics impact the zebrafish (*Danio rerio*) transcriptome: associated developmental and neurobehavioral consequences. Environ Pollut. 266:115090.

Zhang Y, DiehlA, Lewandowski A, Gopalakrishnan, K, **Baker TR**. 2020. Removal Efficiency of Micro- and Nanoplastics (180 nm - 125 um) During Drinking Water Treatment. Science of the Total Environment. 720:137383.

Pederson AF, Steis Thorsby J, Gorrell M, Petriv AV, Miller CJ, **Baker TR.** 2019**.**  How a Michigan Fatberg Was Turned Into an Educational Opportunity. Treatment Plant Operators Magazine, November 18 2019.

Meyer DN, Crofts EJ, Akemann C, Gurdziel K, Farr R, Baker BB, Weber D, **Baker TR**. Developmental exposure to Pb2+ induces transgenerational changes to zebrafish brain transcriptome. Chemosphere. 2019 Dec 2;244:125527. doi: 10.1016/j.chemosphere.2019.125527

Schneider AJ, Gawdzik JC, **Baker TR** and Peterson RE. 2019. SOX9 in Urogenital Sinus Epithelium is Required for Prostatic Bud Elongation and Upregulation of Genes Involved in Cell Movement. Gene Expr Patterns. 2019 Dec;34:119075. doi: 10.1016/j.gep.2019.119075. Epub 2019 Oct 25. PubMed PMID: 31669249.

Shields J, Hales E, Ranspach L, Luo X, Orr S, Runft D, Dombkowski A, Neely M, Matherly L, Taub J, **Baker TR,** and Thummel R. 2019. Exposure of Larval Zebrafish to the Insecticide Propoxur Induced Developmental Delays that Correlate with Behavioral Abnormalities and Altered Expression of hspb9 and hspb11. Toxics: Special Issue Contaminant Effects on Zebrafish Embryos, 7, 50. doi:10.3390/toxics7040050. PubMed PMID: 31546644.

Blount JR, Meyer DN, Akemann C, Johnson SL, Gurdziel K, **Baker TR**, Todi SV. 2019. Unanchored Ubiquitin Chains Do Not Lead to Marked Genetic Alterations in *Drosophila melanogaster*. Biology Open, 8, bio043372.

Akemann C, Meyer DN, Gurdziel K, and **Baker TR**. 2019. Developmental dioxin exposure alters the methylome of adult male zebrafish gonads. Frontiers in Genetics, *Frontiers in Genetics*, *9*, 719.

Baker BB, Meyer DN, Llaniguez JT, Rafique SE, Cotroneo T, Hish G, **Baker TR**. 2018. Management of multiple protozoan ectoparasites in a research axolotl (*Ambystoma mexicanum*) colony. JAALAS. 58 (4): 479-484.

Meyer DN, Baker BB, and **Baker TR**. 2018. Ancestral TCDD exposure induces multigenerational histologic and transcriptomic alterations in gonads of male zebrafish. Toxicological Sciences. 164(2):603-612

Gawdzik JC, Yue M, Martin NR, Elemans LM, Lanham K, Heideman W, Rezendes R, **Baker TR**, Taylor MR and Plavicki JS. 2018. sox9b is required in cardiomyocytes for cardiac morphogenesis and function. Scientific Reports, 8:13906

Baker BB, Yee JS, Meyer DN, Yang D and **Baker TR**. 2016. Histological and Transcriptomic Changes in Male Zebrafish Testes Due to Early Life Exposure to Low Level 2,3,7,8-Tetrachlorodibenzo-p-Dioxin. Zebrafish.13(5):413-23.

Plavicki J, **Baker TR**, Burns F, Xiong K, Gooding A, Hofsteen P, Peterson RE and Heideman W. 2015. Construction and characterization of a sox9b transgenic reporter line. International Journal of Developmental Biology. 58: 693-99.

**Baker TR,** Peterson RE and Heideman W. 2014. Using zebrafish as a model system for studying the transgenerational effects of dioxin. Toxicological Sciences. 138 (1):403-11.

# Baker TR, King-Heiden TC, Peterson RE and Heideman W. 2014. Dioxin Induction of Transgenerational Inheritance of Disease in Zebrafish. Molecular and Cellular Endocrinology. 398(1-2):36-41.

**Baker TR**, Peterson RE and Heideman W. 2014. Adverse effects in adulthood resulting from low-level dioxin exposure in juvenile zebrafish. Endocrine Disruptors. 2:e1-5.

# Baker TR, Peterson RE and Heideman W. 2013. Early dioxin exposure causes toxic effects in adult zebrafish. Toxicological Sciences. 135(1):241-50.

**Baker TR**, Baker BB, Johnson SM, and Sladky KK. 2013. Comparative analgesic efficacy of morphine and butorphanol in koi (Cyprinus carpio) undergoing gonadectomy. Journal of the American Veterinary Medical Association. 243(6):882-90.

MacDonald MJ, Husain RD, Hoffmann-Benning S, and **Baker TR**. 2004. Immunochemical identification of coenzyme Q0-dihydrolipoamide adducts in the E2 components of the alpha-ketoglutarate and pyruvate dehydrogenase complexes partially explains the cellular toxicity of coenzyme Q0. Journal of Biological Chemistry. 279(26):27278-85.

**Baker TR**, Doucette GJ, Powell CL, Boyer GL, and Plumley FG. 2003. GTX(4) imposters: characterization of fluorescent compounds synthesized by Pseudomonas stutzeri SF/PS and Pseudomonas/Alteromonas PTB-1, symbionts of saxitoxin-producing Alexandrium spp. Toxicon. 41(3):339-47.

**Baker TR**. 2001. Saxitoxins: role of prokaryotes. MS Thesis, University of Alaska-Fairbanks.

Plumley FG, Wei Z, **Toivanen (Baker) TB**, Doucette GJ, and Franca S. 1999. Tn5 mutagenesis of Pseudomonas stutzeri SF/PS, a bacterium associated with Alexandrium lusitanicum (Dinophyceae) and Paralytic Shellfish Poisoning. Journal of Phycology 35:1390-1396.

Plumley FG, Wei Z, **Toivanen (Baker) TB**, Doucette GJ, and Franca S. 1998. Molecular analysis of bacteria implicated in synthesis of saxitoxin (abstract). Journal of Phycology. 34S:47.

**INVITED SPEAKER FOR SEMINARS, SYMPOSIUM, AND MEETINGS**

(2023) SETAC annual conference, platform presentation; “Molecular insight into EDC-induced infertility in aquatic model systems”

(2023) SETAC annual conference, platform presentation; “Developmental phenotypic, transcriptomic, and multigenerational consequences of exposure to nanoplastics in zebrafish”

(2023)-Clemson University- invited speaker; Biological Sciences seminar series. November 2023.

(2023)- National Waterkeeper Association; invited speaker; “Persistent contaminants of emerging concern, including PFAS, in water, sediment, and fish in a Great Lakes urban-dominant watershed”. July 2023.

2023 CLEAR annual symposium , invited speaker; “Developmental VOC exposure in zebrafish: Toxic mechanisms and biomarkers”. April 2023

(2023)-UC Riverside- invited speaker; Environmental Sciences seminar series. March 2023.

(2023) NCSU-**.** North Carolina State University; invited speaker; Center for Human Health and the Environment seminar series. January 2023.

(2022) SETAC annual conference; platform presentation; “PFAS and other contaminants of emerging concern in a Great Lakes urban-dominant watershed: implications for human and ecosystem health”

(2022) University of Florida; Department of Physiology in Veterinary Medicine Seminar series. “Adverse health effects and induction of transgenerational inheritance of disease due to environmental contaminants using the zebrafish model”

(2022) Society of Toxicology Annual conference; platform presentation. “Zebrafish as a model for induction of transgenerational inheritance of disease in response to environmental contaminants”

(2022) IAGLR Annual conference; platform presentation. “Persistent contaminants of emerging concern in water, sediment, and fish in a Great Lakes urban-dominant watershed.”

(2021) UC Davis; Environmental Health Sciences seminar series (virtual). January 21, 2021.

(2020) Environmental contaminants: a legacy of disease. University of Wisconsin-Madison Molecular and Environmental Toxicology Seminar series.

(2020) Oregon State University; Environmental and Molecular Toxicology Center (*rescheduled due to COVID closure)*

(2020) University of Pennsylvania; Center for Research on Reproduction and Women's Health (CRRWH) and Center of Excellence in Environmental Toxicology (CEET). *(rescheduled due to COVID closure)*

(2020) University of Rochester; Environmental Health Science Center research seminar series, February 6, 2020.

(2020) Adverse health impacts of environmental contaminants using the zebrafish model; WSU Chemistry and Biology Interface seminar, February 4, 2020.

(2019) Environmental contaminants in Detroit waterbodies: effects on zebrafish; GLWA/WSU Research Symposium, Detroit, MI. November 20, 2019.

(2019) Presence and health impacts of environmental contaminants in urban areas. Global Health, Justice and the Environment Conference, Wayne State, September 11, 2019.

(2019) Michigan State University Institute for Integrative Toxicology Seminar Series. September 10, 2019.

(2019) Zebrafish as a model for induction of epigenetic inheritance of disease in response to environmental contaminants. Epigenetics Inheritance Symposium. Zurich, Switzerland. August 2019.

(2019) At least zebrafish don't bite! Lessons about environmental contaminants from Danio rerio.

Career Recognition Symposium for Richard E Peterson: “A fantastic voyage to understanding TCDD toxicity and AHR biology” Madison Wisconsin, August 16th, 2019.

(2019) Environmental Contaminants in the Lake Huron to Erie Corridor: Effects on Zebrafish. Emerging Contaminants in the Environment. Champaign-Urbana, IL. May 2019.

(2019) Environmental contaminants in Detroit waterbodies: effects on zebrafish:. A Dip in the Water: Healthy Urban Waters Symposium. Wayne State University. May 20, 2019.

(2019) “What is in your Sewer”. A Dip in the Water: Healthy Urban Waters Symposium. Wayne State University. May 20, 2019.

(2019) Walsh University, Undergraduate Seminar Series. February 2019.

(2018) Environmental contaminants in Detroit waterbodies: effects on zebrafish. Emerging Contaminants Conference, Oslo, Norway. June 2018.

(2018) Environmental Stressors and Aquatic Organisms. WSU- Great Lakes Water Authority Research Symposium. Detroit, MI. May 2018.

(2018) Investigating occurrence and effects of endocrine disruption due to environmental contaminants in Detroit waterbodies. St. Clair – Detroit River System Initiative Annual Meeting. Ann Arbor, MI. March 2018.

(2018) Biology Department seminar series, Wayne State, March 2018.

(2017) Transgenerational male infertility due to endocrine disrupting chemical exposure in zebrafish - transcriptomic and epigenetic changes. DOHaD Conference, Detroit, MI, October 2017.

(2017) Anatomy Department seminar series, Wayne State, September 2017.

(2017) UCLA Molecular Toxicology seminar series, UCLA, May 2017

(2017) Zebrafish as a model for induction of transgenerational inheritance of disease due to environmental contaminants. CURES-MLEEaD (Michigan Lifestage Environmental Exposures and Disease) Workshop. University of Michigan. May 2017.

(2016) Zebrafish as a model for dioxin induction of transgenerational inheritance of disease. NIH Trangenerational Inheritance Workshop, Bethesda, MD, April 2016.

(2016) Zebrafish as a Model for Adult-Onset and Transgenerational Male Infertility Due to TCDD Exposure. Society of Toxicology Annual Meeting, New Orleans, LA, March 2016.

(2015) Zebrafish as a Model for Adult-Onset and Transgenerational Male Infertility Due to TCDD Exposure. Gordon Research Conference in Cellular & Molecular Mechanisms of Toxicity, August 2015.

(2014) Adult and transgenerational toxicity in zebrafish due to developmental dioxin exposure. Midwest Regional Chapter-Society of Toxicology, Mundelein, IL, April 2014.

(2012) Adult and transgenerational toxicity due to early sublethal TCDD exposure. Gordon Research Seminar - Environmental Endocrine Disruptors, West Dover, VT, June 2012.

(2010) Evaluation of fish health assessments in Wisconsin. Workshop for Veterinarians on Fish Regulatory Medicine, Madison, WI, September 2010.

(2000) Harmful algal blooms and saxitoxins: effect on Alaska fish and fisheries. Sea Grant-sponsored community lecture series, Fairbanks, AK, August 2000.

**TEACHING AND MENTORING**

**Courses:**

Course Director and Lecturer, UF, Environmental Health Concepts (PHC 6313) (2022, 2023)

Lecturer, Teratology, Wayne State CLEAR SRP course (Fall 2023)

Lecturer, Aquatic Systems PHC 6301 elective, lecture on pesticides (April 2023)

Lecturer, SROP summer program- UW-Madison. *Developmental Toxicology* (2020).

Course Director and Lecturer, *Veterinary Pharmacology and Toxicology* elective/mini-course (PSC 6620/PHC 7650), 2 credits (2018-2020)

Course Director/Lecturer, *Volatile solvents in the environment* mini-course (PHC 7650), 1 credit, (2020).

Lecturer, *Principles of Environmental Health* (FPH 7420), lecture on Environmental impact on life stages (2016-2021)

Lecturer, Water in an Urban Context (BIO 6190), lecture on emerging contaminants of concern(2021)

Lecturer, *Principles of Toxicology* (PHC 7410 & BIO 7011), 3 lectures on Developmental, multigenerational and reproductive toxicology (2016-2020)

Lecturer, (NUR 4120) *Community Health Nursing*, lecture and lab on using zebrafish as a model in biomedical research (2016-2020)

Lecturer, *Principles of Reproductive Bio* (PSL 7690), lecture on Reproductive Toxicology (2019-2020)

Lecturer, *Ecotoxicology* (Bio 6420), lecture on Organic pesticides, PCBs and Dioxins (2019)

Lecturer, *Sustainability of Urban Environmental Systems* (BIO 7310), lecture on One Health and Urban Gardening (2017-2020)

Lecturer, *General Ecology* (Bio 4130), 1 lecture on Ecotoxicology (2017)

Small group facilitator (medical students), *Medical Pharmacology and Therapeutics* (2016-20)

Lecturer, *Pharmaceutical Waste: Environmental Impact and Management*. (PSC/CE 6910) (2016, 2018, 2020)

Lecturer, UW-Madison *Molecular and Environmental Toxicology* Graduate Program (2011, 2015)

Lecturer, *Fish Health Selective*, UW-Madison School of Veterinary Medicine (2014, 2015)

Lecturer and Teaching Assistant, Comparative Biosciences 555: *Veterinary Toxicology*, UW-Madison School of Veterinary Medicine (2012 – 2014)

Lecturer and Lab instructor, *Veterinary Medical Aquaculture* Club, UW-Madison School of Veterinary Medicine (2013)

Lecturer and Teaching Assistant, Surgical Sciences 812: *Research Ethics and Career Development*, UW-Madison School of Veterinary Medicine (2013)

Lecturer, Molecular and Environmental Toxicology 800: Seminar Series, UW-Madison, (2010 – 2012)

Assistant Lab Instructor, Didactic 938-744: *Restraint and Anesthesia of Exotic Animals*, UW-Madison School of Veterinary Medicine (2009 – 2011)

Lecturer and Teaching Assistant, Marine Sciences and Limnology F655: *Phytoplankton Ecology*, University of Alaska-Fairbanks (2000)

**Mentoring (Postdoctoral advisor):**

Anna Boegehold; September 2018- April 2019.

Chia-Chen Wu; September 2019-August 2022

Jessica Blount Pacheco; May 2020-August 2021

Danielle Meyer; August 2021-present

Alex Haimbaugh; part-time January 2023-present

**Mentoring (Graduate advisor):**

**PhD:**

Kimberly McFarlane, Environmental and Global Health, UF (2023-present)

Emily Kintzele, Environmental and Global Health, UF (2023-present)

Megan Slovisky, Physiological Sciences, UF (2022-present)

Mackenzie Connell, Environmental and Global Health, UF (2022-present)

Mallory Llewellyn, Physiological Sciences, UF (2021-present)

Danielle Meyer, Department of Pharmacology-NIEHS F31 recipient (2016-2021)

Camille Akemann, Department of Pharmacology NSF T-RUST program (2017-2020)

Alex Haimbaugh, PhD student; Department of Pharmacology (2019-2022)

Jessica Phillips, PhD student, Department of Pharmacology, (2020-2021)

**MS:**

Ethan Church, MHS in EGH w/ concentration in One Health; UF (2023-present)

Nicole Reiss, MHS in EGH w/ concentration in One Health; UF (2022-present)

Amber Moody, MHS in EGH w/ concentration in One Health; UF (2021-23)

Amber McNamara, MHS in EGH w/ concentration in One Health; UF (2021-22)

Jeremy Shields, Biomedical Sciences Program (2016-2018)

Alexis Lim, BMS student, essay advisor (2017-2018)

Eve Nissan, BMS student, essay advisor (2018-2019)

Kristin Hawes, BMS student, essay advisor (2018-2019)

Rachel Steffes, BMS student, essay advisor (2019-2020)

Sameen Jaffry, BMS student, essay advisor (2020-2021)

**Mentoring (other):**

Graduate Student Committee Member - 24 students (including 2 recent graduates from UW-Madison)

Graduate Student Rotation Advisor - 6 students

Undergraduate Student Advisor - 20 students (WSU) and 12 (UF) including NIH supported national BUILD (Building Infrastructure Leading to Diversity), and Initiative for Maximizing Student Diversity (IMSD), and NSF NRT programs; 4 students (UW-Madison)

# RESEARCH SUPPORT

**Active extramural funding:**

NIH R01 ES034878-01; **Baker (PI)** 1/1/2023- 10/31/2027

*Transcriptomic and epigenetic mechanisms of lead (Pb)-induced neurobehavioral disease in aged populations and subsequent generations*

NIH P42 ES030991 Superfund grant  Miller and Runge-Morris (MPIs) 9/1/2022-6/1/2027 "*Center for Leadership in Environmental Awareness and Research,*"

Role: **Project leader**

NIH R01 ES030722; **Baker (PI)** 12/20/2019-10/31/2024

*Epigenetic and genetic mechanisms of adult-onset and transgenerational male infertility due to endocrine disrupting chemicals.*

Erb Family Foundation; Miller and **Baker** (Co-PIs) 6/7/2021- 6/6/2024

*Healthy Urban Waters 2021: Contaminants of Emerging Concern*

Great Lakes Water Authority Grant; **Baker (PI)** 6/15/2020- 6/15/2022

*PFAS Health and Ecological Impacts*

**Other funding (active):**

University of Florida Foundation Grant. **Baker (PI)** 8/1/2022- 12/31/2023

Everglades emerging contaminant water testing Willoughby Expedition

University of Florida, International Center, **Baker (PI)** 10/1/22-10/31/23

Global Fellows Award to meet global partners and test water quality in Ethiopia

Departmental Start-Up Grant, University of Florida 9/1/2021-8/31/2024Research Start-Up Funds;

**Completed extramural grants:**

NIH F31 ES030278; Meyer (PI) 10/01/2018-9/30/2021

*Investigating the Developmental Mechanisms of TCDD-Induced Reproductive Dysregulation*

Role: **Mentor** (PI, Ms. Danielle Meyer, PhD candidate in Baker Lab)

NSF EAGER Grant 1903329; Miller (PI); **Baker (Co-PI)** 12/1/2018-12/01/2019

*Rapid: Response to Massive Sewer Blockage for Immediate Flood Mitigation and Future Remedies*

K01 OD010462; **Baker (PI)** 7/01/2013-4/30/2019

National Institutes of Health / National Center for Advancing Translational Sciences

*Adult and transgenerational toxicity due to developmental TCDD exposure*

**Completed intramural/foundation grants:**

WSU CURES (NIEHS P30) Pilot Grant; **Baker,** McElmurry, Love **(MPI)** 9/15/2019- 3/30/2021

*Impact of changes in drinking water quality on gut microbiome*

Richard Barber Interdisciplinary Research Program; **Baker** and Miller **(MPI)** 5/01/2020-12/15/2020

*The occurrence and transport of PFAS chemicals in the Detroit River and consequential impact on ecological and human health*

Children's Hospital of Michigan Foundation; **Baker** and Thummel **(MPI)** 1/1/2019-12/30/2020

*A zebrafish model to study the progression of human retinoblastoma*

WSU CURES (NIEHS P30) Pilot Grant; **Baker** and Zhang **(MPI)** 9/15/2018-3/30/2020

*The Occurrence of Microplastics in Drinking Water and the Consequential Impact on Human Health*

WSU CURES (NIEHS P30) Pilot Grant; **Baker (PI)** 10/15/2017-3/30/2019

*The use of novel assay systems to evaluate cardiac, reproductive, and neurobehavioral effects of volatile organic chemicals (VOCs) in aquatic model organisms*

WSU Seed Grant for Project Development; **Baker** and Pitts **(MPI)**  6/15/2016 - 10/30/2018

*Emerging and endocrine disrupting chemicals in Detroit drinking water*