

CURRICULUM VITAE

CONTACT INFORMATION

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Reif Lab <http://reif-lab.org/>
ToxPi <https://toxpi.org/>
Google Scholar <https://scholar.google.com/citations?hl=en&user=5OwEySoAAAAJ>
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EDUCATION AND TRAINING

2006-2008 U.S. Environmental Protection Agency (Research Triangle Park, NC)
Post-doc in Computational Toxicology
2002-2006 Vanderbilt University (Nashville, TN)
Ph.D. in Human Genetics
2003-2005 Vanderbilt University (Nashville, TN)
M.S. in Applied Statistics
1998-2002 College of William & Mary (Williamsburg, VA)
Monroe Scholar Honors Program
B.S. in Biology (Major) & Finance (Minor)

POSITIONS AND PROFESSIONAL EXPERIENCE

2022-Current Branch Chief & Senior Scientist,
Predictive Toxicology Branch,
Division of Translational Toxicology,
National Institute of Environmental Health Sciences, RTP, NC
2020-2022 Professor,
Department of Biological Sciences (Primary Appointment),
Bioinformatics Research Center (Resident Member),
Department of Statistics (Associate Faculty),
NC Agromedicine Institute (Member),
Chancellor's Faculty Excellence Program (Bioinformatics Cluster),
Director, Bioinformatics Consulting and Service Center,
Director, Environmental Health Bioinformatics Training Program
Director, Data Management and Analysis Core (DMAC), Superfund Center for
Environmental and Health Effects of PFAS,
Co-Director, Integrated Health Science Facility Core (IHSFC), Center for Human Health
and the Environment
North Carolina State University, Raleigh, NC
2013-2020 Associate Professor,
Department of Biological Sciences (Primary Appointment),
Bioinformatics Research Center (Resident Member),
Department of Statistics (Associate Faculty),
NC Agromedicine Institute (Member),
Chancellor's Faculty Excellence Program (Bioinformatics Cluster),
Director, Bioinformatics Consulting and Service Center,
Lead, Bioinformatics Team, Center for Human Health and the Environment
North Carolina State University, Raleigh, NC
2013-current Affiliate Member,

Center for Pharmacogenomics and Individualized Therapy,
University of North Carolina, Chapel Hill, NC

2008-2012 Principal Investigator (Statistician),
National Center for Computational Toxicology,
U.S. Environmental Protection Agency, Research Triangle Park, NC

2009-2012 Adjunct Assistant Professor,
Department of Statistics,
North Carolina State University, Raleigh, NC

2008 Visiting Scholar,
Department of Statistics,
North Carolina State University, Raleigh, NC

2006-2008 Federal post-doc (Biologist),
National Center for Computational Toxicology,
U.S. Environmental Protection Agency, Research Triangle Park, NC
(advisor: Elaine Cohen Hubal)

2002-2006 Graduate Research Assistant,
Center for Human Genetics Research,
Vanderbilt University, Nashville, TN
(advisors: Jason Moore and Jonathan Haines)

1999-2001 Research Assistant,
Department of Biology,
College of William & Mary, Williamsburg, VA
(advisor: Patty Zwollo)

2001 Summer Associate,
Navigant Consulting, Washington, DC

SELECTED HONORS, AWARDS, AND APPOINTMENTS

2024 NIEHS Paper of the Month, "Guided optimization of ToxPi model weights using a Semi-Automated approach"

2023-current NIEHS Lead, Committee to Plan Multi-Modal AI for the NIH, National Institutes of Health

2023-current Member, OECD Advisory Group on Emerging Science in Chemicals Assessment (AG ESCA), Organization for Economic Cooperation and Development

2023-current Lead NIEHS Rep, Tox21 Program, Joint NIEHS + NCATS + EPA + FDA Consortium

2023-current Representative (Alt. Rep for NIEHS), Interagency Coordinating Committee for the Validation of Alternative Methods (ICCVAM)

2022-current Sponsor (Management Lead), Scientific Cyberinfrastructure Program Management Team, National Institute of Environmental Health Sciences

2021-current Member, Toxic Substances Control Act (TSCA) Science Advisory Committee on Chemicals (SACC), U.S. Environmental Protection Agency

2021-current Member, Carcinogenicity Gene Signature Development, HESI eSTAR Consortium

2020-current Co-Chair, Data Working Group, U.S. FDA Botanical Safety Consortium

2020-current Advisory Committee, Pacific Northwest Center for Translational Environmental Health Research, Oregon State University

2020-2022 Advisory Board, College of Sciences Mentorship Program, North Carolina State University

2020 Panelist, DR2 Work Group SARS-CoV-2/COVID-19 Environmental Health Research Needs Panel (NIEHS)

2019 Invited Expert, "Implementing a Class Approach to Hazard Assessment of Organohalogen Flame Retardants", National Academy of Sciences (NAS)

2018 Committee Member, "Committee on a Scoping Plan to Assess the Hazards of Organohalogen Flame Retardants", National Academy of Sciences (NAS)

2018 Planning Committee & Session Moderator, "Informing Environmental Health Decisions Through Data Integration", National Academy of Sciences (NAS)

2018 NIEHS Paper of the Month, "Elucidating Gene-by-Environment (GxE) Interactions Associated with Differential Susceptibility to Chemical Exposure"

2017 Working Group, IARC Monographs on the Evaluation of Carcinogenic Risks to Humans – "Benzene", World Health Organization (WHO) International Agency for Research on Cancer (IARC)

2015 Working Group, IARC Monographs on the Evaluation of Carcinogenic Risks to Humans – "Some Organochlorine Insecticides and Some Chlorophenoxy Herbicides", World Health Organization (WHO) International Agency for Research on Cancer (IARC)

2014 Committee Member & Chapter Lead, "Predictive Toxicology Approaches for Military Assessments of Acute Exposures", National Academy of Sciences (NAS)

2014 STAA Level II Award, for the Expocast project, Office of Research and Development, U.S. EPA

2013 STAA Level I Award, for Advancing Chemical Safety Assessment via the Development of Predictive Reproductive and Developmental Toxicity Models, Office of Research and Development, U.S. EPA

2012 Impact Award, for Comptox Chemical Toxicity Databases, Office of Research and Development, U.S. EPA

2012 Honor Award (Bronze Medal), for Development of Reproductive, Developmental, Vascular Disruption and Cancer Predictive Models, Office of Research and Development, U.S. EPA

2012 STAA Level III Award, for the Analysis of Eight Oil Spill Dispersants Using Rapid, In Vitro Tests for Endocrine and Other Biological Activity, Office of Research and Development, U.S. EPA

2012 STAA Level III Award, for the Endocrine Profiling and Prioritization of Environmental Chemicals Using ToxCast Data, Office of Research and Development, U.S. EPA

2011 Presidential Early Career Award for Scientists and Engineers (PECASE), Executive Office of the President
**The first time an EPA scientist won a PECASE, which is "The highest honor bestowed by the United States government on science and engineering professionals in the early stages of their independent research careers"*

2011 Science Achievement Award in Health Sciences, Office of Research and Development, U.S. EPA
**An Agency-level award selected by an external peer panel to recognize significant advances in health sciences and impact on regulatory programs*

2011 EPA Gold Coin Award, Office of the Administrator, U.S. EPA
**A special award to recognize the rapid scientific response to the Deep Water Horizon oil spill emergency*

2011 Honor Award (Bronze Medal), for the Mechanistic Indicators of Childhood Asthma (MICA) study, Office of Research and Development, U.S. EPA

2011 STAA Level II Award, for the Toxicity Reference Database (ToxRefDB), Office of Research and Development, U.S. EPA

2011 Quality Step Increase (QSI) Award, Office of Research and Development, U.S. EPA

2010 OTS Award, Office of Public Affairs, U.S. EPA

2010 S (Superior Accomplishment) Award, National Center for Computational Toxicology, U.S. EPA

2010 S (Superior Accomplishment) Award, National Health and Environmental Effects Research Laboratory, U.S. EPA

2009 OTS Award, National Center for Computational Toxicology, U.S. EPA

2007 OTS Award, Human Studies Division, U.S. EPA

2005	International Travel Grant, Vanderbilt University
2003-2005	NIH Training Grant in Human Genetics, Vanderbilt University
2002	Phi Sigma Biology Honors Fraternity, College of William & Mary
2001	Omicron Delta Kappa Leadership Fraternity, College of William & Mary
2001	Monroe Scholarship Supplemental Award for International Research, College of William & Mary
2000-2001	Howard Hughes Medical Institute Undergraduate Research Grant, College of William & Mary
1998-2002	Monroe Scholar, College of William and Mary

RESEARCH INTERESTS (KEYWORDS)

***Predictive Toxicology; *Environmental Statistics; *Computational Toxicology; *GxE;** Translational Toxicology; Bioinformatics; Artificial Intelligence (AI); Machine Learning (ML); Data Integration; Environmental Health Sciences; Statistical Genetics; Epidemiology; Translational Research; Computational Modeling; Environmental Exposure; Risk Assessment; Gene-Environment Interactions; Visual Analytics and Statistical Graphics; Aquatic Model Organisms (Zebrafish); High Throughput Screening; Bioassay Development; Software Development; New Approach Methodologies (NAMs); Geographic Information Systems (GIS)

****Global top-10 citations for this Google Scholar keyword***

PROFESSIONAL SOCIETIES (ACTIVE)

Society of Toxicology (SOT), Full Member, 2008 – current
 Federation of American Scientists (FAS), Board of Sponsors, 2012 – current
 International Society of Exposure Science (ISES), Member, 2016 – current
 American Society of Human Genetics (ASHG), Member, 2017 – current

EDITORIAL AND REVIEWER SERVICE

Publications

Editorial Board, *Frontiers in Toxicology*, 2019 – current
 Associate Editor, *Environmental Health Perspectives (EHP)*, 2016 – 2023
 Editorial Board, *Journal of Exposure Science and Environmental Epidemiology (JESEE)*, 2016 – current
 Associate Editor, *BioData Mining*, 2018 – current
 Managing Editor, *BioData Mining*, 2015 – 2018
 Journal Reviewer for:
Bioinformatics; Biotechniques; BMC Bioinformatics; Environmental Health Perspectives; Environmental Pollution; Environmental Toxicology and Chemistry; Frontiers in Environmental Science; Genetic Epidemiology; Human Genetics; IEEE/ACM Transactions on Computational Biology and Bioinformatics; Journal of Agricultural, Biological, and Environmental Statistics; Journal of Exposure Science and Environmental Epidemiology; ALTEX; Journal of Infectious Disease; Journal of Statistical Software; Journal of the American Statistical Association; Medical Science Monitor; Neuropsychiatric Genetics; Nucleic Acids Research; Pharmacogenomics; PLoS Genetics; PLoS One; Toxicological Sciences; Science of the Total Environment

Grants

Grant Reviewer, Superfund Research Program (P42),

National Institutes of Health
Grant Reviewer, Medical Research Council (MRC),
Research Councils UK
Study Section *ad hoc* Member, Systemic Injury and Environmental Exposure (SIEE),
National Institutes of Health
Study Section *ad hoc* Member, Digestive, Kidney and Urological Systems (DKUS),
National Institutes of Health
Study Section *ad hoc* Member, Bioengineering Sciences and Technologies (BST),
National Institutes of Health
Grant Reviewer, National Center for Environmental Research (NCER),
U.S. Environmental Protection Agency
Study Section *ad hoc* Member, Biomedical Computing and Health Informatics (BCHI),
National Institutes of Health
Grant Reviewer, Division of Information and Intelligent Systems (IIS),
National Science Foundation

Professional and Fellowships

External Tenure Evaluator,
City University of New York (CUNY)
University of Indiana
Promotion Committee,
National Institutes of Environmental Health Sciences
Graduate Fellowship Reviewer, Science to Achieve Results (STAR),
U.S. Environmental Protection Agency

Translational and Regulatory

Expert Reviewer,
CalEPA's Proposed Toxicological Priority (ToxPi) Framework
Office of Environmental Health Hazard Assessment (OEHHA), State of California
Peer Reviewer,
National Academy of Sciences (NAS)
Peer Reviewer,
International Agency for Research on Cancer (IARC)

TEACHING

Discussion / Journal Clubs

2023-current Originator & Lead,
AI/ML Applications in Toxicology and Environmental Health,
National Institute of Environmental Health Sciences, RTP, NC, USA [Biweekly, Cross-
Divisional Journal Club]

Full Semester Courses

2019-2022 Course Co-Director & Lecturer,
Computational Environmental Health Sciences (BIO 592),
North Carolina State University, Raleigh, NC, USA [Spring Session]
2014-2021 Course Director & Lecturer,
Introduction to Bioinformatics (GN 427),
North Carolina State University, Raleigh, NC, USA [Fall Session]
2011 Lab Course Director & Lecturer,
Statistical Genetics Practicum (STAT 489, STAT 498),
North Carolina State University, Raleigh, NC, USA [Summer Session]

- 2010 Lab Course Director & Lecturer,
Statistical Genetics Practicum (STAT 489, STAT 498),
North Carolina State University, Raleigh, NC, USA [Summer Session]
- 2010 Course Director & Lecturer,
Introduction to R (STAT 610),
North Carolina State University, Raleigh, NC, USA [Spring Session]
- 2008 Course Director & Lecturer,
Introduction to R (STAT 610),
North Carolina State University, Raleigh, NC, USA [Spring Session]
- 2006 Teaching Assistant & Guest Lecturer,
Statistics for Biomedical Researchers (IGP 304),
Vanderbilt University, Nashville, TN, USA [Spring Session].

Short Courses

- 2019 *Introduction to R and Biostatistics* (with Ken Rice),
Winter Institute in Statistical Genetics,
NYU - Abu Dhabi, Abu Dhabi, United Arab Emirates [Short Course]
- 2016 *Bioinformatics* (with Nadia Singh and Dahlia Nielsen),
Research Initiative for Scientific Enhancement (RISE) program,
Fayetteville State University, Fayetteville, NC, USA [Short Course]
- 2015-2016 *Practical Bioinformatics: Introduction to R*,
North Carolina State University, Raleigh, NC, USA [Short Course].

Lectures

- 2022-2023 *Computational Toxicology and Exposure Science (ENVR 730)*
University of North Carolina at Chapel Hill, Chapel Hill, NC, USA.
- 2021-2022 *Computational Toxicology and Exposure Science (ENVR 890)*,
University of North Carolina at Chapel Hill, Chapel Hill, NC, USA.
- 2016-2022 *Responsible Conduct in Science (GN 850 / TOX 820)*
North Carolina State University, Raleigh, NC, USA.
- 2015-2017 *Biochemical and Molecular Toxicology (TOXC / ENVR 442)*,
University of North Carolina at Chapel Hill, Chapel Hill, NC, USA.
- 2015-2022 *Principles of Toxicology (TOX 710)*,
North Carolina State University, Raleigh, NC, USA.
- 2015-2018 *Advanced Toxicology (TOXC / ENVR 707)*,
University of North Carolina at Chapel Hill, Chapel Hill, NC, USA.
- 2013 *Genetic Algorithms (CSC 530)*,
North Carolina State University, Raleigh, NC, USA.
- 2011 *Analytics Methods and Applications (Institute for Advanced Analytics)*,
North Carolina State University, Raleigh, NC, USA.
- 2006 *General Biology I & II*,
Nashville State Technical College, Nashville, TN, USA.

Research & Academic Program Participation and Direction

- 2019-2022 Associate Director
Environmental Health Bioinformatics (T32 Training Grant) Program
North Carolina State University
- 2015-current Training Faculty
Environmental Science and Engineering
University of North Carolina at Chapel Hill
- 2014-current Training Faculty
Toxicology
North Carolina State University

2013-current Training Faculty
Genetics
North Carolina State University

2013-current Training Faculty
Statistics
North Carolina State University

2013-current Training Faculty
Bioinformatics
North Carolina State University

2013-current Training Faculty
Functional Genomics
North Carolina State University

2011-2012 Faculty Mentor & Computational Lab Director
Computation for Undergraduates in Statistics Program
National Science Foundation (PI: Sujit Ghosh)

2010-2011 Faculty Mentor & Computational Lab Director
Computation for Undergraduates in Statistics Program
National Science Foundation (PI: Sujit Ghosh)

MENTORING AND MANAGEMENT

Graduate Students Mentored (As Primary Supervisor)

2021-current Jessie Chappel (joint with Erin Baker, UNC Chapel Hill)
Bioinformatics PhD (expected 2024)
North Carolina State University

2020-current Nnamdi Osakwe
Bioinformatics PhD (expected 2024)
North Carolina State University

2020-current Jonathan Fleming
Bioinformatics PhD (expected 2024)
North Carolina State University

2019-2022 Preethi Thunga
Bioinformatics PhD (graduated)
North Carolina State University

2019-2022 Dylan Wallis
Toxicology PhD (graduated)
North Carolina State University

2019-2021 Melody Hancock
Bioinformatics MS (graduated; currently Bioinformatics PhD student)
North Carolina State University

2017-2022 Aldo Carmona-Baez (joint with Reade Roberts)
Genetics PhD (graduated)
North Carolina State University

2016-2019 Marissa Kosnik
Toxicology PhD (graduated)
North Carolina State University

2015-2019 Kimberly To
Bioinformatics PhD (graduated)
North Carolina State University

2014-2018 Kyle Roell
Bioinformatics PhD (graduated)
North Carolina State University

2014-2017 Michele Balik-Meisner
Bioinformatics PhD (graduated)
North Carolina State University

2013-2016 Guozhu Zhang
Bioinformatics PhD (graduated)
North Carolina State University
2013 Ankita Kalantri
Department of Computer Science MS (graduated)
North Carolina State University

Postdoctoral Scholars Mentored (As Primary Supervisor)

2019-2022 Adrian Green, PhD
Bioinformatics Research Center
North Carolina State University
2012 Lisa Truong, PhD
National Center for Computational Toxicology
U.S. Environmental Protection Agency
2012 Cory Strope, PhD
National Center for Computational Toxicology
U.S. Environmental Protection Agency

Scientific Staff Management (As Direct Supervisor)

2022-current Scientists and Staff,
Predictive Toxicology Branch, Division of Translational Toxicology
National Institute of Environmental Health Sciences
<https://www.niehs.nih.gov/research/atniehs/labs/ptb/staff/index.cfm>
2018-2022 Alison Dickey (PhD, Research Associate)
Bioinformatics Consulting and Service Core
North Carolina State University
2018-2021 Elizabeth Scholl (PhD, Research Scholar)
Bioinformatics Consulting and Service Core
North Carolina State University
2014-2022 Skylar Marvel (PhD, Research Associate)
Department of Biological Sciences
North Carolina State University
2015-2016 Galen Collier (PhD, Research Scholar)
Department of Biological Sciences
North Carolina State University
2012 Sean Watford (BS, Research Fellow)
National Center for Computational Toxicology
US EPA
2011-2012 Dayne Filer (BS, Research Fellow)
National Center for Computational Toxicology
US EPA
2011-2012 Parth Kothiya (MS, Research Fellow)
National Center for Computational Toxicology
US EPA

Graduate Student Committees (*Chair or Co-Chair)

* Guozhu Zhang, Bioinformatics PhD; North Carolina State University
* Michele Balik-Meisner, Bioinformatics PhD; North Carolina State University
Rachel Spreng, Bioinformatics, PhD; North Carolina State University
Ryan Lougee, Toxicology, MS; North Carolina State University
* Kyle Roell, Bioinformatics PhD; North Carolina State University
* Kimberly To, Bioinformatics PhD; North Carolina State University
Sarah Wisotsky, Bioinformatics, PhD; North Carolina State University

Hsieh (Larry) Wu, Bioinformatics, MS; North Carolina State University
William Kohlway, Bioinformatics PhD; North Carolina State University
Ander Wilson, Statistics PhD; North Carolina State University
Ravi Mathur, Bioinformatics PhD; North Carolina State University
Baljinder Kaur, Crop Sciences PhD; North Carolina State University
Sean Watford, Environmental Science and Engineering PhD; University of North Carolina
* Tao Jiang, Bioinformatics PhD; North Carolina State University
Patrick Perkins, Bioinformatics PhD; North Carolina State University
Erin Peterson Genetics PhD; North Carolina State University
* Jun Ma, Bioinformatics PhD; North Carolina State University
Brandon Baker, Genetics PhD; North Carolina State University
Hayden Brochu, Bioinformatics MS; North Carolina State University
Bethany Cook, Chemistry MS; North Carolina State University
* Aldo Carmona-Baez, Genetics PhD; North Carolina State University
Shuping Ryan, Bioinformatics MS; North Carolina State University
* Marissa Kosnik, Toxicology PhD; North Carolina State University
Desiree Unsel, Genetics PhD; North Carolina State University
Yaxu Wang, Bioinformatics PhD; North Carolina State University
Drake Phelps, Veterinary School PhD; North Carolina State University
Matthew Nethery, Functional Genomics PhD; North Carolina State University
Brian Ting, Statistics PhD; North Carolina State University
* Melody Hancock, Bioinformatics MS; North Carolina State University
Mark Simmers, Toxicology PhD; North Carolina State University
Sagi Guillerra, Toxicology PhD; North Carolina State University
Melanie Odenkirk, Chemistry PhD; North Carolina State University
* Preethi Thunga, Bioinformatics PhD; North Carolina State University
* Dylan Wallis, Toxicology PhD; North Carolina State University
* Jonathon Fleming, Bioinformatics PhD; North Carolina State University
* Nnamdi Osakwe, Bioinformatics PhD; North Carolina State University
Yueyang Huang, Statistics PhD; North Carolina State University
Thomas Howard, Bioinformatics MS; North Carolina State University
Jacob Freudenberg, Bioinformatics MS; North Carolina State University
William Marinello, Toxicology PhD; North Carolina State University
Michael Doyle, Chemistry PhD; North Carolina State University
Hannah Starnes, Toxicology PhD; North Carolina State University
Amanda Brucker, Statistics PhD; North Carolina State University
Megan Dillon, Comparative Biomedical Sciences PhD; North Carolina State University
* Jessie Chappel, Bioinformatics PhD; North Carolina State University
Melody Hancock, Bioinformatics PhD; North Carolina State University

FUNDING AND BUDGET MANAGEMENT

External (Competitive Grant) Research Support

NIH/NIEHS R01 R01ES033243

07/01/2022 – 04/30/2027

Characterizing gene-environment interactions that affect individual susceptibility to an expanding chemical exposome

Role: PI

NIH/NIEHS P42 Diversity Supplement

01/01/2022 – 12/31/2023

Gene-environment interactions causing differential susceptibility to chemical stressors in an expanding chemical exposome

Role: PI

NIH/NIEHS P30 ES-025128

04/1/2015 – 03/31/2026

Center for Human Health and the Environment (CHHE)

Role: Co-Director of Integrative Health Science Facility Core & Co-I (PI: Jane Hoppin, NCSU)

NIH/NIEHS U01 Supplement 10/01/2021 – 08/31/2022
Integrative Machine Learning for Synthesis of Cross-Consortium ENM Data
Role: PI

NIH/NIEHS U01 ES-027294 09/01/2016 – 08/31/2022
Multidimensional in vivo Assessments of Engineered Nanomaterials and Biological Interactions
Role: PI of Sub-contract (PI: Robyn Tanguay, Oregon State University)

EPA R83948101 01/01/2019 – 12/31/2022
System toxicological approaches to define and predict the toxicity of Per and Polyfluoroalkyl Substances
Role: PI of Sub-contract (PI: Robyn Tanguay, Oregon State University)

NIH/NCI R01 CA-161608 04/01/2019 – 03/31/2023
Genetic Etiology of Cancer Drug Response
Role: PI

NIH/EPA P42 ES-031009 04/1/2020 – 03/31/2024
Superfund Center for Environmental and Health Effects of PFAS
Role: Director of Data Management and Analysis Core & Co-I (PI: Carolyn Mattingly, NCSU)

NIH RIVER R35 ES-031709 04/1/2021 – 03/31/2029
Discovering Chemical Activity Networks – Predicting Bioactivity Based on Structure
Role: PI of Sub-contract (PI: Robyn Tanguay, Oregon State University)

Completed Research Support

NIH R01 ES-19604 10/01/2014 – 09/30/2015
Integrating Big Data and curated literature to advance discoveries about disease
Role: Co-Investigator (PI: Carolyn Mattingly, NCSU)

University Global Partnership Network (UPGN) 07/01/2016 -- 06/30/2017
An international alliance for Population, Wellbeing and Environment Research
Role: Co-Investigator (PI: Jane Hoppin, North Carolina State University)

NIH P42 ES-005948 10/01/2014 – 09/30/2017
Elucidating Risks: From Exposure and Mechanism to Outcome
Role: Co-Investigator (PI: James Swenberg, University of North Carolina at Chapel Hill)

EPA EPA-G2014-STAR-E1 06/01/2015 – 06/30/2018
System toxicological approaches to define flame retardant adverse outcome pathways
Role: PI of Sub-contract (PI: Robyn Tanguay, Oregon State University)

EPA G2013-STAR-L1 09/01/2014 – 08/31/2018
Cardiotoxicity Adverse Outcome Pathway: organotypic culture model and in vitro/in vivo extrapolation for high-throughput hazard, dose-response and variability assessments
Role: Co-Investigator (PIs: Ivan Rusyn and David Threadgill, Texas A&M University; Fred Wright, NCSU)

NIH R01 ES-023788 01/01/2015 – 12/31/2019
Advancing mechanism-based studies with cross-species chemical-phenotype data
Role: Co-Investigator (PI: Carolyn Mattingly, NCSU)

NIH/NICEATM Contract 07/01/2018 – 06/30/2019
Integrated Data Analysis for Systematic Evaluation of the Application of Zebrafish in Toxicology
Role: PI

CalEPA Contract Bioinformatic and cheminformatic modeling of perfluorinated compounds Role: PI	09/01/2018 – 02/28/2019
Texas A&M Superfund Research Program, Pilot Project Translation of multi-stream data into interactive visual profiles Role: PI	10/31/2018 – 10/31/2019
NIH/NIEHS R56 ES-0300007 Gene-environment interactions causing differential susceptibility to chemical stressors in high-throughput data Role: PI	06/15/2019 – 06/14/2021
NIH/NIEHS R15 Prenatal Supplementation Reduces the Severity of Toxicant-Induced Birth Defects Role: Co-Investigator (PI: Krista McCoy, East Carolina University)	06/01/2018 – 03/31/2021

Federal Budget and Contracts Management

Predictive Toxicology Branch (R&D/contracts + Intramural Research funds) Division of Translational Toxicology, National Institute of Environmental Health Sciences	2022 – current
Cooperative Research and Development Agreement (CRADA) L'Oréal – U.S. Environmental Protection Agency Role: PI	2012 – 2013
Presidential Early Career Award for Scientists and Engineers (PECASE) Office of The White House Role: PI	2011 – 2012
ToxCast <i>in vitro</i> assay contracts (multiple external vendors) U.S. Environmental Protection Agency Role: Contract Officer Representative (COR) / Task Order Contract Officer (TOCOR)	2009 – 2012

DISTRIBUTED SOFTWARE (as PI/Lead)

COVID19 Pandemic Vulnerability Index (PVI) Dashboard: Web application for analytics of data streams related to COVID-19
(Public web application and open source data repository)
<https://covid19pvi.niehs.nih.gov>
<https://github.com/COVID19PVI/data>

optiPi: Open-source module for automated ToxPi weight optimization
(Public software and Github documentation)
<https://github.com/ToxPi/ToxPi-Weight-Optimization>

NIEHS Sandbox Portfolio App: Bespoke web application for coordinating, sorting, and promoting nimble application development
(Internal portion requires login; Public-facing version currently on staging server)
https://gitlab.niehs.nih.gov/ods/dtt_landing/activity

toxpiR: Open-source R package for ToxPi
(Public software and Github documentation)
<https://cran.r-project.org/package=toxpiR>

<https://toxpi.github.io/toxpiR/>

*ToxPi*GIS Toolkit*: Software suite to create customized ToxPi interactive layers within ArcGIS
(Public software toolkit and Github documentation)
<https://github.com/Jonathon-Fleming/ToxPi-GIS>

*ToxPi*GIS*: Dashboard for ToxPi built atop geographic information system (GIS) layers
(Public web application)
<https://toxpi.org/covid-19/map/>

ToxPi GUI: Stand-alone Java application for building ToxPi models
(Free download)
<https://toxpi.org/>

MDR R: R implementation of Multifactor Dimensionality Reduction (MDR) modeling and internal validation
(Free download)
<http://cran.r-project.org/web/packages/MDR/index.html>

zfish GUI: Graphical User Interface (GUI) implementation of analysis and graphics pipeline for high-throughput, zebrafish experimental data
(Shiny package for collaborators)

zfish DB: Web-enabled browser interface for access to results and meta-analysis for high-throughput, zebrafish experimental data from multiple labs
(Password-limited to collaborators)

BIBLIOGRAPHY

[Peer-Reviewed Publications \(link to Google Scholar profile\)](#)

1. Fleming JF, House JS, Chappel JR, Motsinger-Reif AA, Reif DM. Guided Optimization of ToxPi Model Weights using a Semi-Automated Approach. *Computational Toxicology*. 2023 Dec 9: <https://doi.org/10.1016/j.comtox.2023.100294>. Epub ahead of print.
2. Marinello WP, Gillera SEA, Huang L, Rollman J, Reif D, Patisaul HB. Uncovering the Common Factors of Chemical Exposure and Behavior: Evaluating Behavioral Effects Across a Testing Battery Using Factor Analysis. *Neurotoxicology*. 2023 Oct 30:S0161-813X(23)00138-9. doi: 10.1016/j.neuro.2023.10.012. Epub ahead of print. PMID: 37914043.
3. Chappel JR, Kirkwood-Donelson KI, Reif DM, Baker ES. From big data to big insights: statistical and bioinformatic approaches for exploring the lipidome. *Anal Bioanal Chem*. 2023 Oct 25. doi: 10.1007/s00216-023-04991-2. Epub ahead of print. PMID: 37875675.
4. Wallis DJ, Kotlarz N, Knappe DRU, Collier DN, Lea CS, Reif D, McCord J, Strynar M, DeWitt JC, Hoppin JA. Estimation of the Half-Lives of Recently Detected Per- and Polyfluorinated Alkyl Ethers in an Exposed Community. *Environ Sci Technol*. 2023 Oct 6. doi: 10.1021/acs.est.2c08241. PMID: 37801709.
5. Ogletree SS, Huang JH, Reif D, Yang L, Dunstan C, Osakwe N, Oh JI, Hipp JA. The relationship between greenspace exposure and telomere length in the National Health and Nutrition Examination Survey. *Sci Total Environ*. 2023 Sep 28;905:167452. doi: 10.1016/j.scitotenv.2023.167452. PMID: 37777139.
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