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Education

Research Scientist	*Massachusetts Institute of Technology* Center for Environmental Health Sciences Mentor: Leona Samson	**2002-2008**
Post-Doctoral Associate	*Massachusetts Institute of Technology* Department of Biomaterials Science/Biology Mentor: Cho-Kyun Rha	**2000-2002**
Ph.D.	*Tulane University-Degree* *Yale University-Research* Degree: Biology Department of Biology Mentor: Xing-Wang Deng	**2000**
M.S.	*Tulane University* Degree: Biology Department of Biology Mentor: Phillip Kadowitz (Pharmacology)	**1997**
B.S.	*William Smith College* Degree: Biology High Honors, Magna Cum Laude, Phi Beta Kappa Mentor: Steve Kolmes	**1995**

Professional Experiences

Carol Remmer Angle Distinguished Professor	UNC	2017-present
Professor, Department of Environmental Sciences and Engineering	UNC	2017
Associate Professor, Department of Environmental Sciences and Engineering	UNC	2013-2017
Assistant Professor, Department of Environmental Sciences and Engineering	UNC	2008-2013
Research Scientist	MIT	2002-2008
Post-Doctoral Associate	MIT	2000-2002
Graduate Research Assistant	Yale University	1997-2000
Graduate Research Assistant	Tulane University	1995-1997
Undergraduate Research Assistant	Cornell University	1994-1995
Research Intern	SmithKline Beecham Pharmaceuticals	1994

Other Professional Experiences

Interim Chair, Department of Environmental Sciences and Engineering	UNC	2023-present
Associate Chair, Department of Environmental Sciences and Engineering	UNC	2017-2023
Director, Institute for Environmental Health Solutions	UNC	2017-present

Director, UNC Superfund Research Program	UNC	2020-present; 2015-2018
Associate Director for Translational Science, UNC Center for Environmental Health and Susceptibility		2021-
Director, Graduate Studies, Curriculum in Toxicology & Environmental Medicine	UNC	2015-2022
Deputy Director, UNC Superfund Research Program	UNC	2014-2015
Director, Biostatistics T32 Training Grant	UNC	2010-present
Director, CEHS Genomics and Bioinformatics Group	MIT	2006-2008

Honors and Awards

- Newton Underwood Memorial Teaching Award 2022
- Translational Science Impact Award, Society of Toxicology (SOT) 2021
- Teaching Innovation Award, Gillings School of Global Public Health 2014
- Teaching Innovation Award, Gillings School of Global Public Health 2012
- Newton Underwood Memorial Teaching Award 2011
- Winner of NIEHS Outstanding New Environmental Scientist (ONES) Award 2010
- PopTech Science Public Leadership Fellowship 2010
- Aspen Cancer Conference Fellow 2009
- Pfizer Scholar in Public Health 2009
- Infinite Mile Award-Massachusetts Institute of Technology 2005
- Magna Cum Laude and High Honors in Biology 1995

Scientific Membership

- Society for Pediatric Research 2020-present
- American Chemistry Society 2012-present
- Society of Toxicology 2010-present
- Environmental Mutagen Society 2007-present
- Sigma Xi 1995-present
- Phi Beta Kappa 1995-present

Bibliography

Peer-reviewed publications (270 published or *in press*). **H-index = 53.** ORCID ID: https://orcid.org/0000-0003-0899-9018. Note: * indicates student mentees, ** indicates post-doc/senior researcher mentees, #indicates junior faculty mentee, ++ indicates senior author, &indicates co-senior author:

1. Winker R, Payton A, *Brown E, McDermott E, Freedman JH, Lenhardt C, **Eaves LA, **Fry RC**, Rager JE. Wildfires and climate justice: future wildfire events predicted to disproportionally impact socioeconomically vulnerable communities in North Carolina. Front Public Health. 2024 Apr 29;12:1339700. doi: 10.3389/fpubh.2024.1339700. eCollection 2024.
2. PMID: 38741908 Free PMC article.Suthar H, Manea T, Pak D, Woodbury M, Eick SM, Cathey A, Watkins DJ, Strakovsky RS, Ryva BA, Pennathur S, Zeng L, Weller D, Park JS, Smith S, DeMicco E, Padula A, **Fry RC**, Mukherjee B, Aguiar A, Geiger SD, Ng S, Huerta-Montanez G, Vélez-Vega C, Rosario Z, Cordero JF, Zimmerman E, Woodruff TJ, Morello-Frosch R, Schantz SL, Meeker JD, Alshawabkeh AN, Aung MT; Program Collaborators for Environmental Influences on Child Health Outcomes. Cross-Sectional Associations between Prenatal Per- and Poly-Fluoroalkyl Substances and Bioactive Lipids in Three Environmental Influences on Child Health Outcomes (ECHO) Cohorts. Environ Sci Technol. 2024 May 1. doi: 10.1021/acs.est.4c00094. PMID: 38691655

3. O'Shea TM, Jensen ET, Yi JX, Lester B, Aschner JL, Stroustrup A, Zhang X, McGrath M, Sanderson K, Joseph RM, Singh R, Thompson AL, Hofheimer J, Vohr B, McGowan E, Santos H, **Fry RC**; of program collaborators for Environmental influences on Child Health Outcomes. Association of Growth During Infancy With Neurodevelopment and Obesity in Children Born Very Preterm: The Environmental influences on Child Health Outcomes Cohort. J Pediatr. 2024 Apr 17:114050. doi: 10.1016/j.jpeds.2024.114050. PMID: 38641165
4. Eaves LA, Harrington CE, ++**Fry RC**. Epigenetic Responses to Nonchemical Stressors: Potential Molecular Links to Perinatal Health Outcomes. Curr Environ Health Rep. 2024 Apr 6. doi: 10.1007/s40572-024-00435-w. PMID: 38580766 Review.
5. Call C, Oran A, O'Shea TM, Jensen ET, Frazier JA, Vaidya R, Shenberger J, Gogcu S, Msall ME, Kim S, Jalnapurkar I, **Fry RC**, Singh R. Social determinants of health rather than race impact health-related quality of life in 10-year-old children born extremely preterm. Front Pediatr. 2024 Mar 14;12:1359270. doi: 10.3389/fped.2024.1359270. eCollection 2024. PMID: 38550629 Free PMC article.
6. Zhang X, Blackwell CK, Moore J, Liu SH, Liu C, Forrest CB, Ganiban J, Stroustrup A, Aschner JL, Trasande L, Deoni SL, Elliott AJ, Angal J, Karr CJ, Lester BM, McEvoy CT, O'Shea TM, **Fry RC**, Shipp GM, Gern JE, Herbstman J, Carroll KN, Teitelbaum SL, Wright RO, Wright RJ; of collaborators for the Environmental influences on Child Health Outcomes program. Associations between neighborhood characteristics and child well-being before and during the COVID-19 pandemic: A repeated cross-sectional study in the environmental influences on child health outcome (ECHO) program. Environ Res. 2024 Mar 26:118765. doi: 10.1016/j.envres.2024.118765. Online ahead of print. PMID: 38548252
7. McFayden TC, Harrop C, Roell K, Joseph RM, **Fry RC**, O'Shea TM. Sex Differences in Autistic Youth Born Extremely Preterm. J Autism Dev Disord. 2024 Mar 15. doi: 10.1007/s10803-024-06319-0. Online ahead of print. PMID: 38489107
8. Hodge KM, Zhabotynsky V, Burt AA, Carter BS, **Fry RC**, Helderman J, Hofheimer JA, McGowan EC, Neal CR, Pastyrnak SL, Smith LM, DellaGrotta SA, Dansereau LM, Lester BM, Marsit CJ, O'Shea TM, Everson TM. Epigenetic associations in HPA axis genes related to bronchopulmonary dysplasia and antenatal steroids. M; program collaborators for Environmental influences on Child Health Outcomes. Pediatr Res. 2024 Mar 13. doi: 10.1038/s41390-024-03116-4. Online ahead of print. PMID: 38480856
9. **Bulka CM, Rajkotwala HM, **Eaves LA, Gardner AJ, Parsons PJ, Galusha AL, O'Shea TM, ++**Fry RC.** Placental cellular composition and umbilical cord tissue metal(loid) concentrations: A descriptive molecular epidemiology study leveraging DNA methylation. Placenta. 2024 Jan 24;147:28-30. doi: 10.1016/j.placenta.2024.01.009. Online ahead of print. PMID: 38281400
10. Wylie AC, Short SJ, **Fry RC**, Mills-Koonce WR, Propper CB. Maternal prenatal lead levels and neonatal brain volumes: Testing moderations by maternal depressive symptoms and family income. Neurotoxicol Teratol. 2024 Jan 18;102:107322. doi: 10.1016/j.ntt.2024.107322. Online ahead of print. PMID: 38244816
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17. *Freedman AN, **Roell K, Engwall E, Bulka C, Kuban KCK, Herring L, Mills CA, Parsons PJ, Galusha A, O'Shea TM, ++**Fry RC**. Prenatal Metal Exposure Alters the Placental Proteome in a Sex-Dependent Manner in Extremely Low Gestational Age Newborns: Links to Gestational Age. Int J Mol Sci. 2023 Oct 7;24(19):14977. doi: 10.3390/ijms241914977. PMID: 37834424 Free PMC article.
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Books and Chapters: (16 total; 2 edited books, 14 chapter submissions). Note: * indicates student mentees, ** indicates post-doc/senior researcher mentees, $^{++}$ indicates senior author):

Books (2):

1. **++Fry RC.** Systems Biology in Toxicology and Environmental Health, 1st Edition. Edited by Fry, RC. 2015. London and Waltham: Elsevier.
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5. **Venkatratnam, Abhishek and **++Fry RC.** 'The role of nutrition and epigenetics in environmental Toxicology' in Environmental Epigenetics in Toxicology and Public Health, Translational Epigenetics Series. Edited by Fry, RC. 2020. London and Cambridge: Elsevier. pp. 303-322.
6. **Smeester, L., *Yosim, A.E. and **++Fry RC.** 'Chemical hazards', in Bartram, J., with Baum, R., Coclanis, P.A., Gute, D. M., Kay, D., McFayden, S., Pond, K., Robertson, W. and Rouse, M.J. (eds). 2015. Routledge Handbook of Water and Health. London and New York: Routledge. pp. 107-121.
7. *Yosim, A., and **++Fry RC.** 'Systems Biology in Toxicology and Environmental Health', in Systems Biology in Toxicology and Environmental Health, 1st Edition. Edited by Fry, RC. 2015. London and Waltham: Elsevier. pp. 1-10.
8. **Ray, P. and **++Fry RC.** 'The Cell: The Fundamental Unit in Systems Biology' in Systems Biology in Toxicology and Environmental Health, 1st Edition. Edited by Fry, RC. 2015. London and Waltham: Elsevier. pp. 11-42.
9. *Tilley, SK and **++Fry RC.** 'Priority Environmental Contaminants: Understanding Their Sources of Exposure, Biological Mechanisms and Impacts on health' in Systems Biology in Toxicology and Environmental Health, 1st Edition. Edited by Fry, RC. 2015. London and Waltham: Elsevier. pp. 117-169.
10. **Sollome, J. and **++Fry RC.** 'Environmental Contaminants and the Immune System: A Systems Perspective' in Systems Biology in Toxicology and Environmental Health, 1st Edition. Edited by Fry, RC. 2015. London and Waltham: Elsevier. pp. 171-186.
11. *Tilley, SK and **++Fry RC.** 'Hormone Response Pathways as Responders to Environmental Contaminants and Their Roles in Disease' in Systems Biology in Toxicology and Environmental Health, 1st Edition. Edited by Fry, RC. 2015. London and Waltham: Elsevier. pp. 225-238.
12. *Rager J and **++Fry RC.** Network Biology: Theories, Methods and Applications. Edited by WenJun Zhang. Published 2013 by Nova Publishers. pp. 81-132.

13. **Bailey K and **++Fry RC.** Arsenic and the Epigenome. Toxicology and Epigenetics, First Edition. Edited by Saura C. Sahu. John Wiley & Sons, Ltd. Published 2012 by John Wiley & Sons, Ltd. pp. 149-183.
14. **Fry RC** and Samson LD. 2003. Methods of Microarray Data Analysis II. DNA Repair, 21; 2 (11):1289-91.

Oral presentations/abstracts (184 Total Invited Speaker; 8 Keynote, 103 invited presentations, 73 poster presentations):

Keynote Speaker (8 total)

1. *Protecting infants born extremely preterm from harms in the environment.* Break the Cycle Annual Conference, April 2023.
2. *Environmental drivers of pregnancy and child health outcomes: ties to the epigenome. Department of comparative Biomedical Sciences, Louisiana State University. Web-based presentation.* February, 2021.
3. *The placenta: A driver of early and later life disease.* Developmental Programming and Disease: Environmental Risk Factors, Mechanics and Strategies Workshop, Rochester, NY. September 2018
4. *Mapping metals contamination in NC.* Water and Health Conference, Chapel Hill, NC. October 2016.
5. *Toxicant-induced epigenetic alterations in children; causes and effects.* Oklahoma State University Center for Health Sciences, Tulsa, OK. February 2016.
6. *Using genomics to inform the risk assessment process.* GEMS, NIEHS, Durham, NC. October 2014
7. *Identifying sites of DNA methylation that are functionally predictive.* Duke Epigenetic Symposium, Durham, NC. October 2014.
8. *Systems Biology in Environmental Health*. Third International Toxicogenomics Integrated with Environmental Sciences (TIES) conference, NC. September 2011.

Invited Speaker (103 total, * denotes international venue)

1. *Placental origins of health and disease.* McGill University, Montreal Canada. NC State University, Raleigh, NC. May 2024.
2. *Climate change effects on preterm birth risk.* University of Kentucky, Louisville, KY. April 2024.
3. *Multi-omic analysis of the placenta identifies predictors of autism later in life.* Data Science in Environmental Health Symposium. NC State University, Raleigh, NC. April 2024
4. *Exploring Health and Disease Origins through Multi-Omic Investigations in the Placenta.* Symposium on Integrative Analysis of 'Omics Data for Identification of Pathways Related to Toxicity. American Chemical Society Symposium. April 2024.
5. *The placental origins of health and disease: A recorder and transducer of environmental toxics,* The Center of Excellence in Environmental Toxicology, University of Pennsylvania, PA. October 2023.
6. *Early life origins of health among individuals born extremely preterm*. University of Iowa, Iowa City, Iowa. February 2023.
7. **The placenta: A recorder and transducer of the effects of toxic metals exposure*. 11th Metal Toxicity and Carcinogenesis. Montreal, Canada. October 2022
8. *Mechanisms Underlying Perflouroalkyl Substance-Induced Effects: Placenta, Pregnancy Outcomes, and Child Development*. Endocrine Disruptors Society Meeting, Durham, NC. September 2022.
9. *Introduction to one approach to integrate PFAS research findings into life science instruction;* Part of the Interactive Design to engage all learners: Investigating the human health effects of PFAS exposure Part I Design Institute, UNC Chapel Hill, Chapel Hill. March 2022.
10. *The placental origins of health and disease: A recorder and transducer of environmental toxics,* Department of Physiology & Pharmacology, West Virginia University. March 2022.
11. *The placental origins of health and disease: A recorder and transducer of Environmental Toxics,* Oklahoma State University Center for Health Sciences, ITP, Integrated Toxicology Program (ITP); OK. March 2022.

12. *Cadmium: An epigenetic placental toxicant tied to preeclampsia, within the symposium of cadmium and the developmental origins of disease: the implications of early life exposures on health later in life;* Society of Toxicology, San Diego, CA. March 2022.
13. *Poor water quality and its impacts on pregnant women and children.* Federation of American Societies for Experimental Biology (FASEB); The Nexus of Soil and Water Quality: Impacts on the Health of Humans, Animals and Ecosystems. Web-based presentation. February 2022.
14. *Are there toxic metals in your drinking water?* Silent Spring 2.0 Reproductive Environmental Health, environmental Disparities and the Imperative for Environmental Justice. Society for Maternal-fetal Medicine, 42nd Annual Pregnancy Meeting. Web-based presentation. January 2022.
15. *Environmental Diabetogens: The Case for arsenic.* North Carolina Diabetes Research Center. January 2022.
16. *Current Understanding of Mechanisms Underlying Arsenic-Induced Developmental Toxicity.* Society of Toxicology (SOT) and Food and Drug Administration (FDA) Colloquia on Emerging Toxicological Science Challenges in Food and Ingredient Safety, Arsenic and Children's Health. Web-based presentation. December 2021.
17. *My career in academia: How did I get here and what did I learn?* US Developmental Origins of Health and Disease Society meeting. Durham, NC. November 2021.
18. *The Placental; A recorder and transducer of environmental toxics.* Department of Environmental and Public Health Sciences. University of Cincinnati College of Medicine, Cincinnati, Ohio. November 2021.
19. *PFAS and Placental Function. The Placenta: A recorder and transducer of environmental toxics. American Diabetes Association's Virtual 81st Scientific Sessions; PFAS exposure in Pregnancy: Disrupting Endocrine Milieu of Pregnancy—Mechanisms of Per- and Polyfluoroalkyl Substances (PFAS) in Maternal–Fetal Health.* Web-based presentation. June 2021.
20. *The placenta: The placenta: sensor, recorder and transducer of toxics in the environment. Tox-I ACS meeting. Web-based presentation.* Web-based presentation. March 2021.
21. *The placenta: The placenta: sensor, recorder and transducer of toxics in the environment. Society of Toxicology Award Presentation for Translational Impact.* Web-based presentation. March 2021.
22. *Early Life Origins of Health Among Individuals Born Extremely Preterm, Environmental Influences of Child Health Outcomes (ECHO) Discovery.* Web-based presentation. February 2021.
23. *Environmental drivers of pregnancy and child health outcomes. Department of Obstetrics and Gynecology Department, Baylor University.* Web-based presentation. January 2021.
24. *UNC Superfund Research Program. Superfund Research Program Progress in Research Webinar Part 1: Metals,* Web-based presentation. October 2020.
25. *Environmental Drivers of Cancer, Lineberger Cancer Center.* October 2020.
26. *Identifying Epigenetic Biomarkers of Arsenic-Induced Fetal Birthweight. Predicting the Human Health Effects from Environmental Exposures: Applying Translatable and Accessible Biomarkers of Effect. National Academies of Science.* Web-based presentation. August 2020.
27. *Arsenic and its latent health effects. SRP Risk eLearning Webinar. Web-based presentation.* May 2020.
28. *PFAS and the placenta, N.C. DEQ and DHHS Secretaries' Science Advisory Board (SSAB),* Raleigh, NC. November 2019.
29. *PFAS and the placenta, PFAS Testing Network,* Raleigh, NC. October 2019.
30. *The Placenta: a Driver of Early and Later Life Disease*, University of Southern California. Los Angeles, CA. October 2019
31. *CffRNA: a biomarker of toxic metals exposure*, 9th Rodent Pathology Symposium. Raleigh, NC. October 2019
32. *The Placental Epigenome as a Driver of Human Health and Disease*, Teratology Society Meeting. San Diego, CA. June 2019.
33. *The Placental Epigenome as a Driver of Human Health and Disease*, University of Connecticut, School of Pharmacy, Department of Pharmaceutical Sciences. Storrs, CT. June 2019.
34. **The placental epigenome as a driver of the developmental origins of health and disease.* Society for Reproductive Investigation. Paris, France. March 2019.
35. *Genomic and Epigenomic Perturbations by Fetal Exposure to Endocrine Disruptors.* ENDO. Chicago, Ill. January 2019.

36. *Barriers and Challenges to Report-Back from the Toxicologist Perspective.* Partnerships for Environmental Public Health Annual Meeting, National Institute of Environmental Health Sciences, Research Triangle Park, NC. December 2018.
37. *Global "OMICS" Approaches Targeting Adverse Pregnancy and Neonatal Outcomes Utilizing Existing Cohorts,* Grantee Meeting, Washington, DC. November 2018.
38. *The Placental Epigenome as a Driver of Later Life Disease,* Tenth Conference on Metal Toxicity & Carcinogenesis, University of New Mexico, Albuquerque, NM. October 2018.
39. *A Healthy Start for Every Child: How the Environment Influences Health and Development*. U.S. Congress Briefing, Washington, DC. October 2018.
40. *Circulating Cell-Free RNA as Biomarkers of Exposure to Toxic Substances*. National Institute of Environmental Health Sciences, Durham, NC. September 2018.
41. **Identifying epigenetic links for arsenic-associated bladder cancer: from human population data to The Cancer Genome Atlas (TCGA).* International Agency on Cancer Research. Lyon, France. June 2018.
42. *The placental epigenome as a driver of the developmental origins of health and disease*. Department of Environmental Health Sciences and Engineering. Oregon State University, Corvallis, OR. May 2018.
43. **Links between Placental Bacteria, Epigenetic Variation, and Child Outcomes*. Pediatric Academy Society Meeting. Toronto, Canada. May 2018.
44. *Toxic metals exposure: understanding mechanism of action and risk assessment*. Department of Environmental Health. Columbia University. New York, NY. April 2018.
45. *The placental epigenome as a driver of the developmental origins of health and disease*. Department of Environmental Health Sciences and Engineering. Johns Hopkins University. Baltimore, MD. April 2018.
46. *Prenatal Arsenic Exposure and the Epigenome: Informing Disease Mechanisms and the Risk Assessment Process.* March 2018. Society of Toxicology (SOT) Annual Meeting. San Antonio, TX. March 2018.
47. *Genomic and Epigenomic Perturbations by Fetal Exposure to Endocrine Disruptors.*. ENDO2018. Chicago, Ill. March 2018.
48. *The placental epigenome as a driver of the developmental origins of health and disease*. Department of Environmental Sciences and Epidemiology. University of Buffalo. Buffalo, NY. February 2018.
49. *Genome editing research for translational toxicology solutions.* The promise of genome editing tools to advance environmental health research. National Academies of Sciences, Engineering and Medicine. Washington, D.C. January 2018.
50. *The placental epigenome as a driver of the developmental origins of health and disease.*. Duke University Integrated Toxicology and Environmental Health Program. Durham, NC. September 2017
51. *Identifying an epigenetic basis for arsenic-associated bladder cancer in a population in Chihuahua, Mexico.* AACR Conference on Health Disparities. Atlanta, GA. September 2017.
52. *Building AOPs for Arsenic-Induced Developmental Outcomes for Improved Risk Assessment*. OpenTox USA. Durham, NC. July 2017.
53. *Incorporating epigenetic data into the risk assessment Process: A case study on inorganic Arsenic.* EPA, Raleigh, NC. May 2017.
54. *Translational approaches to understand the role of the epigenome in metals-induced toxicity.* Chromatin Meeting, UNC-Chapel Hill. Chapel Hill, NC. May 2017.
55. *Translational approaches to understand the role of the epigenome in metals-induced toxicity.* Department of EOHS, University of Pittsburgh. Pittsburgh, PA. May 2017.
56. *Protecting Women and Children from Toxic Metals Exposure in the Home.* Women's health Awareness Day. April 2017. Raleigh, NC.
57. *Building AOPs for arsenic-induced developmental outcomes for improved risk assessment.* Society of Toxicology (SOT) Annual Meeting. March 2017. Baltimore, MD.
58. *Systems Toxicology Approaches to Understand the Harms of Toxic Metals in Vulnerable Populations.* Society of Toxicology (SOT) Annual Meeting. Baltimore, MD. March 2017.
59. *Toxic metals and children's environmental health.* The Children's Research Institute Retreat. UNC-Chapel Hill. Chapel Hill, NC. November 2016.
60. **Prenatal exposure to arsenic and miRNA expression as a modulator of immune response in children*. 8th Princess Chulabhorn International Science Congress. Bangkok, Thailand. November 2016.
61. *Metals induced toxicity and the epigenome.* Toxicoepigenomics: The Interface of Epigenetics and Risk Assessment. Tysons Corner, VA. November 2016.

62. *What's in your water?* Tarheel ToxTalks. Chapel Hill, NC. October 2016.
63. *Health effects of inorganic arsenic*. National Institute of Environmental Health Sciences (NIEHS) Superfund Research Program (SRP) and EPA's Contaminated Site Clean-Up Information (CLU-IN), Risk e-Learning webinars, SRP Water Innovation – An Integrated Approach to Sustainable Solutions: Session IV - Communicating Risk and Engaging Communities: Arsenic and Well Testing, Clu in Webinar, SRP. July 2016.
64. *Novel Approaches for the Assessment of Environmentally-Induced Birth Defects*. Teratology Society Annual Meeting. San Antonio, TX. July 2016.
65. **Epigenetic regulation of toxic metal-induced disease in children*. Epigenetics and Environmental Origins of Cancer Meeting. IARC. Lyon, France. June 2016.
66. *Early Life Exposures, Later Life Disease: The Role of the Genome and the Epigenome*. Predictive Toxicology and Disease Group. NIEHS. Durham, NC. May 2016.
67. *Protecting children around the globe from the harms of toxic metals*. ONES Awardee Symposium. NIEHS. Durham, NC. May 2016.
68. *Building Academic-Government-Community Partnerships for Improved Public Health*. GEMS. US-EPA, Raleigh, NC. April 2016.
69. *Temporal issues related to prenatal and early life exposure to inorganic arsenic*. USEPA Workshop on Temporal Exposure Issues for Environmental Pollutants. Research Triangle Park, NC. January 2016.
70. *Temporal issues related to prenatal and early life exposure to inorganic arsenic*. USEPA Workshop on Temporal Exposure Issues for environmental Pollutants. Research Triangle Park, NC. January 2016.
71. *Maternal genotype for arsenic 3 methyltransferase AS3MT is associated with arsenic metabolism and newborn birth outcomes with interactions between fetal sex.* Annual Superfund Research Program Meeting. San Juan, Puerto Rico. November 2015.
72. *Arsenic in private wells in North Carolina: potential public health implications*. Environmental Health Summit. Research Triangle Park, NC. October 2015.
73. *Critical scientific issues in assessing health risk from oral exposure to inorganic arsenic*. Environmental Mutagenesis and Genomics Society Meeting. New Orleans, LA. September 2015
74. *Epigenetic impacts of prenatal exposure to inorganic arsenic*. Environmental Mutagenesis and Genomics Society Meeting. New Orleans, LA. September 2015.
75. *Epigenetic effects of arsenic and other toxic metals*. EPA Workshop on Epigenetics and Cumulative Risk Assessment. Washington DC. September 2015.
76. *Systems Toxicology of Environmental Metals: Identifying Key Molecular Pathways Linking Environmental Exposure with Disease Prenatal metal exposure and the epigenome*. Pittcon. New Orleans, LA. March 2015.
77. *Prenatal metal exposure and the epigenome.* SRP annual Meeting. San Jose, CA November 2014.
78. *Prenatal Arsenic Exposure, Shifts in Cell Signaling Pathways and Newborn Health Effects*. ONES Awardee Symposium. NIEHS, Durham, NC. July 2014.
79. *The Glucocorticoid Receptor: A Role in Mediating Arsenic Toxicity*. Receptor Mechanisms Discussion Group. NIEHS, Durham, NC. April 2014.
80. *Prenatal arsenic exposure and shifts in the fetal proteome*. Toxicology and Risk Assessment Guidance: From principles to practice in the age of omics, osomes and new opportunities. West Chester, OH. April 2014.
81. *Systems biology and toxic metals: Linking biological pathways with health effects*. Vanderbilt University. Nashville, TN. January 2014.
82. *Prenatal arsenic exposure and the proteome.* 15th International Pacific Basin Consortium for Environment and Health. Honolulu, Hawaii. October 2013.
83. *Arsenic and the DNA methylome, linked by proteomic shifts.* Society of Toxicology, 52nd Annual Meeting and ToxExpo. San Antonio, TX. March 2013.
84. *Arsenic and the DNA methylome, linked by proteomic shifts.* Dartmouth College. Hanover, NH. March 2013,
85. **Arsenic and the DNA methylome, linked by methylation*. 7th Princess Chulabhorn International Science Congress. Bangkok, Thailand. November 2012.

86. *Arsenic and the DNA methylome, links to exposure and disease.* Arsenicals and the Epigenome. University of Arizona. Tuscon, AZ. September 2012.
87. *Prenatal Cadmium Exposure and Changes to the DNA methylome*. ATSDR (Connecting Research and Practice). CDC. Atlanta, GA. August 2012.
88. *Arsenic and the Epigenome.* NC-State University. Raleigh, NC. April 2012.
89. *Early Life Exposures-long term health consequences.* Superfund Webinar. NC. March 2012.
90. *Is your drinking water safe*? NC State Health Directors Meeting. Raleigh, NC. March 2012.
91. *Arsenic and the Epigenome*. Brown University. Providence, RI. March 2012.
92. *Arsenic and the Epigenome*. The North Carolina Society of Toxicology Fall Meeting. Durham, NC. September 2011.
93. *Altered DNA Methylation Patterns in Individuals with Arsenicosis*. The Society of Toxicology. Washington DC. March 2010.
94. *Toxicogenomics Approaches to Understand the Impact of Prenatal Arsenic Exposure.* International Society of Exposure Science (ISES). MN. November 2009.
95. *Identification of Genetic and Epigenetic Biomarkers of Metal Exposure and Metal-Induced Disease Using Environmental Toxicogenomics and Systems Biology.* Keystone Science Lecture: Division of Extramural Research and Training. NIEHS. Durham, NC. October 2009.
96. **Activation of Inflammation/NF-κB Signaling in Infants Born to Arsenic Exposed Mothers.* International Meeting on Environmental Mutagens (ICEM). Florence, Italy. August 2009.
97. *Activation of Inflammation/NF-κB Signaling in Infants Born to Arsenic Exposed Mothers*. ICCA-LRI workshop Connecting Innovations in Biological, Exposure and Risk Sciences: Better Information for Better Decisions. Charleston, SC. June 2009.
98. **Genomic Predictors of Inter-Individual Differences in Response to DNA Damaging Agents.* 3rd US-EU Systems Biology Workshop, Systems level understanding of DNA damage responses. The Netherlands. April 2009
99. *Genomics Applications: Detecting human exposures and predicting inter-individual susceptibilities*. Exposure Science Community of Practice. EPA. Durham, NC. March 2009.
100. *Genomics Applications: Detecting human exposures and predicting inter-individual susceptibilities.* EPA. Durham, NC. March 2009.
101. *Activation of Inflammation/NF-κB Signaling in Infants Born to Arsenic Exposed Mothers.* Annual Environmental Health Sciences Symposium. MDIBL. Salisbury Cove, ME. July 2008.
102. *Activation of Inflammation/NF-κB Signaling in Infants Born to Arsenic Exposed Mothers*. Environmental Mutagen Society Meeting. Atlanta, GA. July 2007.
103. *Standardization across microarray platforms*. Toxicogenomics Gordon Conference. Bates College. Lewiston, ME. July 2007.

Selected Poster Presentations (73 total)

1. Gardner, A.J., Oran A., Eaves L.A., O'Shea, T. M., **++Fry RC.** Exposure to Endocrine disruptors and adverse child health measures in teenagers born extremely preterm. USA Exposome Symposium: Children's Health, Environmental Justice, and the Exposome Nashville, TN. January 2024.
2. Harrington C, Eaves LA, Keil A, Brown ED, Marable CA, Styblo M, and **++Fry RC.** Association Between Arsenic in Private Drinking Well Water and Diabetes Prevalence in North Carolina. Interdisciplinary Nutrition Sciences Symposium, Chapel Hill, NC. March 2022.
3. Gardner, A.J., Brown, E., Jr., O'Shea, T. M., **++Fry RC.** Toxic and essential metals associated with gestational age in the ELGAN cohort. Superfund Research Program Annual Meeting. Raleigh, NC. December 2022.
4. Marable, CA, O'Shea TM, Roell, K, **++Fry RC.** Origins of Cerebral White Matter Damage: Exploring the Placental Transcriptome Brain Axis. US Developmental Origins of Health and Disease Society Conference. Chapel Hill, NC. November 2021.

5. Huff, KK, Roell, K, Clark, J, Bulka, CM, O'Shea, TM, and **++Fry RC.** Evaluating the Associations Between Maternal Environment During Pregnancy and Placental Epigenetic Age Acceleration & Clock CpG Methylation. US Developmental Origins of Health and Disease (DOHAD) Annual Meeting. November 2021.
6. Eaves LA, Bulka CM, Rager JE, Parsons PJ, Galusha AL, O'Shea TM, **++Fry RC.** Prenatal exposure to toxic and essential metal/metalloid mixtures is associated with placental genomic signatures. Developmental Origins of Health and Disease Annual Meeting. November 2021.
7. Eaves, LA, Keil, AP, Tomlinson, M, and **++Fry RC.** Multi-metal Analysis of Private Well Water in North Carolina: Implications for Exposure Assessment and Public Health. Society of Toxicology (SOT) Annual Meeting. March 2021.
8. Meakin, CJ, Szilagyi, JT and **++Fry RC.** University. Arsenic-Induced Alterations in Glucocorticoid Receptor Regulated Gene Expression in Full-Term Placental Explants. Society of Toxicology (SOT) Annual Meeting. March 2021.
9. Clark, J, Bommarito, P, Laine, J, Stýblo, M, García-Vargas, Gamble, and **++Fry RC.** Micronutrients Promoting Inorganic Arsenic (iAs) Methylation Efficiency Modify the Negative Association between iAs Exposure and Lower Birth Weight. Society of Toxicology (SOT) Annual Meeting. March 2021.
10. A. Venkatratnam, A, **Fry RC**, and M. Styblo, M. Sex-Dependent Effects of Preconception Exposure to Arsenite on Gene Transcription in Parental Germ Cells and on Transcriptomic Profiles and Diabetic Phenotype of Offspring. Society of Toxicology (SOT) Annual Meeting. March 2021.
11. Register, H., O'Shea, T.M. and **++Fry RC.** Infant growth after discharge from neonatal intensive care: associations with health and developmental outcomes in adolescents born extremely preterm. Pediatric Academy Society. 2020.
12. *Huff, K, *Clark, J., **Bulka, C. and **++Fry RC.** The Placental Epigenetic Clock as a Mediator of the Effects of Perinatal Exposures on Neurological Outcomes. NC Society of Toxicology (NC-SOT) Annual Meeting. September 2020 (zoom).
13. *Tilley, S.K., Joseph, R.M., Kuban K.C.K., Dammann, O.U., O'Shea, T.M. and **++Fry RC.** Genomic Biomarkers of Prenatal Intrauterine Inflammation in Umbilical Cord Tissue Predict Later Life Neurological Outcomes. Society of Toxicology (SOT) Annual Meeting. March 2017. Baltimore, MD.
14. *Clark, J., *Martin, E., *Smeester,L., Rubio-Andrade, M., Styblo,M., García-Vargas, G. **++Fry RC.** Prenatal Arsenic Exposure and Sexual Epigenetic Dimorphism: Sexual Dimorphism of 5-methylcytosine Alterations in Newborn Cord Blood from the BEAR Cohort. Society of Toxicology (SOT) Annual Meeting. March 2017. Baltimore, MD.
15. *Martin, E., **Smeester, L. M. Rubio-Andrade, M. G. García-Vargas, G. M. Styblo, M. **++Fry RC.** Proteomic Analysis of Maternal Circulating Blood Reveals That Mothers Pregnant with Males Have More Arsenic-Associated Protein Alterations Than Mothers Pregnant with Females. Society of Toxicology (SOT) Annual Meeting. March 2017. Baltimore, MD.
16. *Gallo, G., *Martin, E., Drobná, Z., Douillet, C., Kim, K., Rubio-Andrade,M., García-Vargas, G., Styblo, M., Zou, F., **Fry RC**$^{++}$ Maternal Genotype for Arsenic (+3 Oxidation State) Methyltransferase Is Associated with Cord Serum Levels of Methylated Arsenicals. Society of Toxicology (SOT) Annual Meeting. March 2017. Baltimore, MD.
17. *Bommarito, P.A., *Martin, E., *Smeester, L., Baker, E., Karagas, M.R. and **++Fry RC.** Fetal-Sex Dependent Expression of Immune Genes in the Circulating Lymphocytes of Arsenic-Exposed Pregnant Women in New Hampshire. NIEHS SRP Annual Meeting/EHS Fest. December 2016. Durham, NC.
18. *Laine J.E., Ilievski V., García-Vargas G., Gamble M.V. and **++Fry RC.** Maternal nutritional biomarkers involved in one carbon metabolism and arsenic exposure during the prenatal period. NIEHS SRP Annual Meeting/EHS Fest. December 2016. Durham, NC.
19. **Brooks, S., *Martin, E., *Smeester, L., Grace, M.R., Boggess, K. and **++Fry RC.** miRNAs as Common Regulators of the Transforming Growth Factor (TGF)-β Pathway in the Preeclamptic Placenta and Cadmium-treated Trophoblasts: Links between the Environment, the Epigenome and Preeclampsia. NIEHS SRP Annual Meeting/EHS Fest. December 2016. Durham, NC.
20. *Martin, E., *Smeester,L., *Bommarito, P.A., Grace, M.R., Boggess, K., Kuban, K., O'Shea,T.M. **Fry RC**$^{++}$ Sexual epigenetic dimorphism in the human placenta: Implications for susceptibility to stressors during the prenatal period. Toxicoepigenetics, November 2016, Tysons Corner, VA.
21. *Adebambo O.A., Shea D. and **++Fry RC.** Synergistic Induction of Metal-Responsive and Oxidative Stress Gene Biomarkers in Placental JEG-3 Cells by Environmental Arsenic & Cadmium Mixtures. SETAC Annual Meeting. 2016. Orlando, Fl.
22. *Adebambo O.A., Ray P.D., Shea D. and **++Fry RC.** Induction of Metal-Responsive and Oxidative

Stress Gene Biomarkers in Placental JEG-3 Cells by Arsenic & Cadmium Mixtures from Polluted Waste Sites. SOT Annual Meeting 2016, New Orleans, LA

23. *Laine JE, W Bodnar, P Cable, K Boggess, S. Offenbacher, **++Fry RC.** Assessment of Toxic and Essential Metals in the Placenta and Risk of Preeclampsia in a Pregnancy Cohort. Society of Toxicology. March 2016. New Orleans, LA.
24. **Brooks SA, *Martin E, **Smeester L, Grace MR, Boggess K, **++Fry RC.** Cadmium Exposure influences angiogenic pathways in preeclamptic placenta and placental cells Via epigenetic mechanisms. Society of Toxicology. March 2016. New Orleans, LA.
25. *Martin E,**Smeester L, *Bommarito PA, Grace M.R., Boggess K, Kuban, K, O'Shea T.M., **++Fry RC.** Sexual epigenetic dimorphism in the human placenta: Implications for susceptibility to stressors during the prenatal period. Toxicoepigenomics: The Interface of Epigenetics and Risk Assessment. November 2016. Tysons Corner, VA.
26. *Adebambo OA, **Ray PD, Shea D and **++Fry RC.** Synergistic induction of metal-responsive and oxidative stress gene biomarkers in placental JEG-3 cells by arsenic and cadmium mixtures from hazardous waste sites. Annual Superfund Meeting. November 2015. San Juan, Puerto Rico.
27. *Laine JE, Bodnar W, Cable P, Boggess K, Offenbacher S, **++Fry RC.** Assessment of Toxic and Essential Metals in the Placenta and Risk of Preeclampsia in a Pregnancy Cohort. Annual Superfund Meeting. November 2015. San Juan, Puerto Rico.
28. *Laine JE, Bodnar W, Cable P, Boggess K, Offenbacher S, **++Fry RC.** Assessment of Toxic and Essential Metals in the Placenta and Relationship to Preeclampsia in a Pregnancy Cohort. Society for Epidemiological Research. June 2015. Denver, CO.
29. *E Martin, *Rager J, Bailey K, González-Horta C, Sánchez-Ramírez B, Ballinas-Casarrubias L, Ishida M, Gutiérrez-Torres D, Cerón RH, Morales DV, Terrazas FB, Del Razo LM, Vargas GG, Saunders RJ, Jia W, Buse J, Loomis D, Drobna Z, Styblo M, **++Fry RC.** Identification of a metabolomics fingerprint of arsenic-associated diabetes in a prospective cohort in Mexico. Annual Superfund Research Program. November 2015. San Juan, Puerto Rico.
30. *Miller SK, *Rager JE, Moeller BC, Kracko D, Doyle-Eisele M, Swenberg JA, **++Fry RC.** Formaldehyde-associated changes in gene and cytokine expression profiles within a nonhuman primate nose and circulating blood. Society of Toxicology. 54th Annual Meeting and ToxExpo. March 2015. San Diego, California.
31. **Sollome, J, **Ray, P,* Laine, J, Grace, M *Martin, E **Smeester, S, Cable, P, Barrow, D, Bodnar, W, Boggess, K, **++Fry RC.** Cadmium-associated dysregulation of pro-inflammatory cytokines in the human placenta. Society of Toxicology. 54th Annual Meeting and ToxExpo. March 2015. San Diego California.
32. *Rager JE, **Bailey KA, *Smeester L, *Miller SK, Parker JS, *Laine JE, Drobná Z, Currier J, Douillet C, Olshan AF, Rubio-Andrade M, Stýblo M, García-Vargas G, **++Fry RC.** Prenatal arsenic exposure and the epigenome: altered microRNAs associated with innate and adaptive immune signaling in newborn cord blood. Society of Toxicology. 53rd Annual Meeting and ToxExpo. March 2014. Phoenix, Arizona.
33. *Sanders AP, *Miller SK, Nguyen V, Kotch JB, **++Fry RC.** Toxic Metal Levels in Children Residing in a Smelting Craft Village in Vietnam: A Pilot Biomonitoring Study. Society of Toxicology. 53rd Annual Meeting and ToxExpo. March 2014. Phoenix, Arizona.
34. *Laine JE, **Bailey, KA, Rubio-Andrade MR, Olshan A, **Smeester L, Drobna Z, Styblo M, Herring, AH, Garcia-Vargas G, **++Fry RC.** Biomarkers of Exposure to Arsenic (BEAR) pregnancy cohort in Mexico: Arsenic methylation is linked to poorer birth outcomes. Society of Toxicology. 53rd Annual Meeting and ToxExpo. March 2014. Phoenix, Arizona.
35. *Laine JE, Rubio-Andrade MR, Olshan A, Styblo M, Garcia-Vargas G, **++Fry RC.** Prenatal exposure to inorganic arsenic in Gómez Palacio, Mexico, links to contaminated drinking water. Society of Toxicology. 53rd Annual Meeting and ToxExpo. March 2014. Phoenix, Arizona.
36. *Sanders AP, Desrosiers TA, Herring AH, Enright D, Olshan AF, Meyer R, **++Fry RC.** Association between copper, iron, and zinc levels in private wells and birth defects prevalence in North Carolina. Society of Toxicology. 53rd Annual Meeting and ToxExpo. March 2014. Phoenix, Arizona.
37. *Rojas D, **Bailey K, *Sanders AP, **Smeester L,**Ahir B, *Rager J, **++Fry RC.** Cadmium and the epigenome: DNA methylation patterns as "environmental footprints" of transcription factor occupancy. Society of Toxicology. 53rd Annual Meeting and ToxExpo. March 2014. Phoenix, Arizona.

38. *Rager JE, Moeller BC, Doyle-Eisele M, Swenberg JA, **++Fry RC.** Formaldehyde-Induced Changes in MicroRNA Signaling. Society of Toxicology. 53rd Annual Meeting and ToxExpo. March 2014. Phoenix, Arizona.
39. *Rager JE, Moeller BC, Doyle-Eisele M, Swenberg JA, **++Fry RC.** Formaldehyde-Induced Changes in MicroRNA Signaling. NC SOT. February 2013. Research Triangle Park.
40. *Sanders AP, *Rojas D, **Bailey KA, **Ahir B, **++Fry RC.** A systems biology approach to cadmium toxicity in human cardiomyocytes and choriocarcinoma JEG-3 placental cells. National Birth Defects Prevention Network Annual Meeting. February 2013. Atlanta, GA.
41. *Sanders AP, Desrosiers TA, Herring AH, Enright D, Olshan AF, Meyer RE, **++Fry RC.** Association between arsenic, cadmium, lead, and manganese levels in private wells and birth defects prevalence in North Carolina. Annual Superfund Center Meeting. October 2012. Raleigh, NC.
42. *Laine J, *Sanders A, Garrett M, Miranda M, Ashley-Koch A, **++Fry RC.** Genes and the Environment: Genetic Variants Of Th1/Th2 Cytokines Associated With Cd-Induced Racial Differences In Birth Weight. Annual Superfund Center Meeting. October 2012. Raleigh, NC.
43. *Gruber J, *Patel R, *Rager JE, *Sanders AP, Edwards S, Gallagher J, **++Fry RC.** Exposure to metals mixtures: Genomic alterations of infectious disease response pathways in children exposed to environmental metals. Environmental Mutagen Society. September 2012. Seattle, Washington.
44. *Sanders AP, **Smeester L, DeBussycher T, Wu MC, Wright FA, Zhou Y, *Laine JE, *Rager JE, Swamy GK, Ashley-Koch A, Miranda ML, **++Fry RC.** Identifying Cadmium-Specific Patterns of DNA Methylation in Mother-Baby Pairs. Environmental Mutagen Society. September 2012. Seattle, Washington.
45. *Sanders AP, *Rager JE, Wu M, *Laine JE, **Smeester L, Kelkar H, Swamy GK, Ashley-Koch A, Miranda ML, **++Fry RC.** Prenatal cadmium exposure and altered gene-specific DNA methylation in newborn cord blood. Fetal Programming and Environmental Exposures. June 2012. New York, NY.
46. *Rager JE, Moeller BC, **Smeester L, Sexton KG, Jaspers I, Swenberg JA, **++Fry RC.** Formaldehyde Induces Significant Changes in MicroRNA Expression Profiles In Vitro and In Vivo. Visiting Pulmonary Scholar Symposium. May 2012. Chapel Hill, NC.
47. *Rager JE, **Smeester L, Sexton KG, Jaspers I, Swenberg JA, **++Fry RC.** Epigenetic Effects of Formaldehyde Exposure. Society of Toxicology, 51st Annual Meeting and ToxExpo. May 2012. San Francisco, CA. *student speaker
48. *Sanders AP, Desrosiers TA, Herring AH, Olshan AF, Meyer R, **++Fry RC.** Association between arsenic, cadmium, lead, and manganese in private wells and birth defects prevalence. Epidemiology and Evaluation Annual Poster Day. North Carolina Division of Public Health. April 2012. Raleigh, NC.
49. **Bailey KA, **Smeester L, Ward WO, *Rager JE, Guan X, *Smith N, García-Vargas G, Del Razo L-M, Drobná Z, Kelkar H, Stýblo M, **++Fry RC.** Arsenical-Specific DNA Methylation Profiles. Poster Presentation Society of Toxicology. 51st Annual Meeting and ToxExpo. March 2012. San Francisco, CA.
50. *Sanders AP, Desrosiers TA, Herring AH, Olshan AF, Meyer R, **++Fry RC.** Association between toxic metals in private wells and birth defects prevalence. National Birth Defects Prevention Network Annual Conference. February 2012. Washington, DC.
51. **Bailey KA, **Smeester L, Ward WO, *Rager JE, Guan X, *Smith N, García-Vargas G, Del Razo LM, Drobná Z, Kelkar H, Stýblo M, **++Fry RC.** Arsenic and the Epigenome: Linked by Methylation. Center for Environmental Health and Susceptibility (CEHS) annual symposium. November 2011. Chapel Hill, NC.
52. Kotch JB, **Fry RC**, *Sanders AP, Ngyugen V. Heavy metal contamination among children in the Red River Basin in Vietnam. Center for Environmental Health and Susceptibility. November 2011. UNC-Chapel Hill, NC.
53. *Sanders AP, *Rager JE, **Smeester L, Kelkar H, Ashley-Koch A, Miranda ML, **++Fry RC.** Cadmium exposure in utero: epigenetic effects. Superfund Research Program Annual Meeting. October 2011. Lexington, KY.
54. *Sanders AP, *Rager JE, **Smeester L, Kelkar H, Ashley-Koch A, Miranda ML, **++Fry RC.** Epigenetic effects of prenatal cadmium exposure: inflammatory pathways targeted. Environmental Mutagen Society Annual Meeting. October 2011. Montreal, Quebec, Canada.
55. *Rager JE, Lichtveld K, Ebersviller S, **Smeester L, Jaspers I, Sexton KG, **++Fry RC.** A Toxicogenomic Comparison of Primary versus Photochemically Altered Air Pollutant Mixtures. International Toxicology of Mixtures Conference. October 2011. Arlington, VA.

56. *Rager JE, Lichtveld K, Ebersviller S, **Smeester L, Jaspers I, Sexton KG, **++Fry RC.** A Toxicogenomic Comparison of Primary versus Photochemically Altered Air Pollutant Mixtures. Visiting Pulmonary Scholar Symposium. October 2011. Chapel Hill, NC.
57. *Sanders AP, Messier KP, Sheehee M, Rudo K, Serre ML, **++Fry RC.** Assessing Arsenic Levels in North Carolina Domestic Well Water. Legislative Day: North Carolina General Assembly. May 2011. Raleigh, NC.
58. **Bailey KA, Wallace K, **Smeester L, Thai, SF, Doug C. Wolf DC, Edwards, SC, **++Fry RC.** Differential Modulation of Cancer-Related Molecular Networks in Human and Rat Urinary Bladder Cells Exposed to Trivalent Arsenicals. Society of Toxicology Annual meeting. March 2011. Washington, D.C.
59. *Sanders AP, Gallagher JE, McGee J, Rhoney S, Hudgens E, Özkaynak H, **++Fry RC.** Assessing Metal Levels in Children from the Mechanistic Indicators of Childhood Asthma (MICA) Study. Society of Toxicology Annual Meeting. March 2011. Washington, DC.
60. **Bailey K., **Smeester L, Ward W, *Rager J, Guan X, *Smith N, García-Vargas G, Del Razo LM, Kelkar H, Stýblo M, **++Fry RC.** Arsenical-Specific DNA Methylation Profiles. NC SOT. February 2011. Research Triangle Park, NC.
61. *Prasad PY, Chastain PD, Nikolaishvili-Feinberg N, **Smeester L, Kaufmann WK, **++Fry RC.** An ATM-Dependent DNA Damage Response Induced by Titanium Dioxide Nanoparticles. Environmental Mutagen Society Annual Meeting. October 2011. Montreal, Canada.
62. *Sanders AP, *Rager J, **Smeeter L, Kelkar H, Ashley-Koch A, Miranda ML, **++Fry RC.** Epigenetic effects of prenatal cadmium exposure: inflammatory pathways targeted. Environmental Mutagen Society Annual Meeting. October 2011. Montreal, Canada.
63. *Sanders AP, Messier KP, Neal J, Shehee M, Rudo K, Serre ML, **Fry RC**, Pfaender F, Gray K, Bouma B, Slaughter T. Tracking and Analyzing Contaminants in North Carolina Private Well Waters. Superfund Research Program Annual Meeting. November 2010. Portland, OR.
64. *Sanders AP, Messier KP, Neal J, Shehee M, Rudo K, Serre ML, **++Fry RC.** Mapping Arsenic Levels in North Carolina Private Well Waters. Environmental Mutagen Society Annual Meeting. October 2010. Fort Worth, Texas.
65. *Sanders AP, Gallagher J, McGee J, Rhoney S, Hudgens E, **++Fry RC.** Identifying Concomitant Metals in Dust, Urine, and Fingernails from Children in Detroit, Michigan. Environmental Mutagen Society Annual Meeting. October 2010. Fort Worth, Texas.
66. *Rager J, **Smeester L, Jaspers I, Sexton K, **++Fry RC.** Formaldehyde Exposure Alters MicroRNA Expression Profiles in Human Lung Cells. Environmental Mutagen Society Annual Meeting. October 2010. Fort Worth, Texas.
67. **Smeester L, *Rager J, Zhang L, Guan X, **Bailey K, *Smith N, Garcia-Vargas G, Del Razo L, Drobna Z, Kelkar H, Schroth G, Styblo M and **++Fry RC.** Altered DNA Methylation Patterns in Individuals with Arsenicosis. Genetics and Environmental Mutagenesis Society Fall Meeting. October 2010. Durham, NC.
68. *Rager JE, Lichtveld K, Ebersviller S, **Smeester L, Jaspers I, Sexton KG, **++Fry RC.** A Toxicogenomic Comparison of Primary and Photochemically Altered Air Pollutant Mixtures. Environmental Mutagen Society Annual Meeting. March 2010. Fort Worth, Texas.
69. Drobna Z, Niculescu M, **Fry RC** et al. Epigenetic alterations in fetal mouse livers after in utero exposure to arsenic. 49th Annual SOT Meeting and ToxExpo. March 2010.Utah, Nevada.
70. **Fry RC** et al. Identifying genomic predictors of chemotherapeutic response. 24th Aspen Cancer Conference. July 2009. Denver, Colorado.
71. **Fry RC**, Kean O, Rha CK. Analysis of transcriptional responses of mouse fibroblasts to extracts of Eurycoma longifolia using DNA microarrays. Second Malaysia-MIT Biotechnology Partnership Program (MMBPP) Symposium. October 2002. Kuala Lumpur, Malaysia.
72. **Fry RC** and Deng XW. The isolation and characterization of novel mutations within the phytochrome A light signal transduction pathway. 10th International Conference on Arabidopsis Research. June 1999. Melbourne, Australia.
73. **Fry RC**, Champion H, Erickson C, Fitzgerald W, Bivalacqua T, Garrison E and Kadowitz P. Comparison of responses to proadrenomedullary peptide and PAMP (12-20) in the mesenteric vascular bed of the cat. Experimental Biology. October 1996. Washington, D.C.

Teaching Activities

(@ indicate activities that emphasize inclusive excellence)

Course Director **ENVR 400, UNC** **Fall 2023-Spring 2024**
Title: **Departmental Seminar**. Course ID: 400; Number of Enrolled Students: Fall 2023 (n=52); Spring 2024 (n=18); Credit Hours: 1; Role in the Course: Instructor (100%).

Course Director **ENVR 630-001, UNC** **Fall, 2009-present**
Title: **Systems Biology in Environmental Health**. New Course launched in the Department of Environmental Sciences and Engineering. Course ID: 630-001; Number of Enrolled Students: Fall 2009 (n=16); Spring 2011 (n=11); Spring 2012 (n=17); Spring 2013 (n=18); Fall 2013 (n=13); Fall 2014 (n=12); Fall 2015 (n=14); Fall 2016 (n=21); Fall 2017 (n=28); Fall 2018 (n=20); Fall 2019 (n=31); Fall 2020 (n=17); Fall 2021 (n=22); Fall 2022 (n=25); Credit Hours: 3; Role in the Course: Instructor (100%).

@Course Director **ENVR 240-001, UNC** **Spring, 2020-present**
Title: **Introduction to Human Exposure and Health Effects Research**. New Course launched in the Department of Environmental Sciences and Engineering with an emphasis on recruiting historically under-represented undergraduate students in STEM. Course ID: 240-001; Number of Enrolled Students: Spring 2020 (n=10); Spring 2021 (n=10); Spring 2022 (n=20); Spring 2023 (n=8); Spring 2024 (n=13) Credit Hours: 1; Role in the Course: Instructor (100%). Note that there are typically two graduate students who assist me with this course.

Course Co-Director **ENVR 442-001, UNC** **Fall, 2014 - 2019**
Title: **Molecular and Biochemical Toxicology**. Course ID: 442-001; Number of Enrolled Students: Fall 2014 (n=14); Fall 2015 (n=11); Fall 2016 (n=14); Fall 2017 (n=14); Fall 2018 (n=15); Fall 2019 (n=14). Credit Hours: 3; Role in the Course: ESE Co-Instructor, Jaspers: Toxicology Instructor.

Course Co-Director **ENVR 601-001, UNC** **Fall, 2012- 2019**
Title: **Epidemiology for Environmental Scientists**. New Course launched in the Department of Environmental Sciences and Engineering. Course ID: 890-007; Number of Enrolled Students: Fall 2012 (n=6); Spring 2014 (n=19); Spring 2015 (n=23).; Spring 2016 (n=25); Spring 2017 (n=13); 2018 (n=17); 2019 (n=9). Credit Hours: 3; Role in the Course: ESE Co-Instructor, Yeatts: Epidemiology Co-Instructor.

Course Co-Director **ENVR 890-004, UNC** **Fall, 2015-2016**
Title: **Risk Assessment in the 21st Century.** Course ID: 890-004; Number of Enrolled Students: Fall 2015 (n=6); Fall 2016 (n=2, 3 auditors). Credit Hours: 1; Role in the Course: ESE Instructor, MacDonald-Gibson-Co-Instructor.

Guest Lecturer **ENVR 771, UNC** **Fall, 2018-present**
Title: Biological Monitoring. Course instructor: Leena Nylander-French; Role in course: Guest lecturer.

Guest Lecturer **ENVR 785, UNC** **Fall, 2018-present**
Title: Environmental Epidemiology. Course instructor: Larry Engel; Role in course: Guest lecturer.

Guest Lecturer **ENVR 732, Duke University** **Spring, 2014-present**
Title: Mechanisms in Environmental Toxicology. Course instructor: Joel Meyer; Role in course: Guest lecturer.

Guest Lecturer **ENVR 732, UNC** **Fall, 2012-2018**
Title: Health Effects of Air Pollutants. Course instructor: Milan Hazucha; Role in course: Guest lecturer.

Guest Lecturer **Pathology 726, UNC** **Fall, 2010-2018**
Title: Human Environmental Disease. Course instructor: William Kaufmann; Role in course: Guest lecturer.

Guest Lecturer **ENVR 442, UNC** **Fall, 2009-2014**

Title: Biochemical Toxicology. Course instructor: Ivan Rusyn; Role in course: Guest lecturer.

Guest Lecturer **ENVR 431, UNC** **Fall, 2008-2012**
Title: Techniques in Environmental Health Sciences. Coordinated and taught laboratories on microarray technology for ENVR 431. Course instructor: Louise Ball; Role in course: Guest lecturer.

Module Instructor **MIT** **2002-2008**
Developed short courses on microarray processing/analysis for the Computational and Systems Biology Initiative at MIT, BE109 and IAP courses; Role in Course: Instructor (CSBi), Guest Lecturer (BE109 and IAP).

Summary of Graduate Advising/Mentoring

Current Graduate Student Supervision-Primary Advisor (11 total; 10 Ph.D.; 1 MPH):

Ph.D.

1. **Audrey Bousquet (Ph.D.)** **2023-present**
   Primary advisor of supervisory committee. Department: Environmental Sciences and Engineering, Gillings School of Global Public Health, UNC-Chapel Hill, NC.
2. **Nosa Oyemwenosa Avenbuan (Ph.D.)** **2023-present**
   Primary advisor of supervisory committee. Topic: TBD. Department: Curriculum in Toxicology and Environmental Medicine, UNC-Chapel Hill, NC.
3. **Jenna Frey (Ph.D.)** **2023-present**
   Primary advisor of supervisory committee. Department: Environmental Sciences and Engineering, Gillings School of Global Public Health, UNC-Chapel Hill, NC.
4. **Kristina Stuckey (Ph.D)** **2023-present**
   Primary advisor of supervisory committee. Department: Environmental Sciences and Engineering, Gillings School of Global Public Health, UNC-Chapel Hill, NC.
5. **Mikayla Watt (Ph.D.)** **2022 -present**
   Primary advisor of supervisory committee. Topic: TBD. Department: Curriculum in Toxicology and Environmental Medicine, UNC-Chapel Hill, NC.
6. **Arjun Keshava (Ph.D.)** **2022 -present**
   Primary advisor of supervisory committee. Topic: TBD. Department: Environmental Sciences and Engineering, Gillings School of Global Public Health, UNC-Chapel Hill, NC.
7. **Amaree Gardner (Ph.D.)** **2021 -present**
   Primary advisor of supervisory committee. Topic: Contaminants in drinking water and human health effects. Department: Environmental Sciences and Engineering, Gillings School of Global Public Health, UNC-Chapel Hill, NC. Topic: Community-engagement in environmental health science.
8. **Katelyn Huff (Ph.D.)** **2019 -present**
   Primary advisor of supervisory committee. Topic: Epigenetic aging and toxic substances. Department: Curriculum in Toxicology and Environmental Medicine, UNC-Chapel Hill, NC.
9. **Eric Brown (Ph.D.)** **2020 -present**
   Primary advisor of supervisory committee. Topic: Superfund sites and their association with demographic factors. Department: Environmental Sciences and Engineering, Gillings School of Global Public Health, UNC-Chapel Hill, NC.
10. **Verdant Julius** (**MPH**) **2023-present**
    Primary advisor of supervisory committee. Department: MPH, Gillings School of Global Public Health, UNC-Chapel Hill, NC.

Current Graduate Student Supervision-Primary Advisor (11 total; 10 Ph.D.; 1 MPH):

Ph.D.

1. **Devin Alewal (Ph.D.)** **2023-present**
   Academic advisor of supervisory committee. Department: Environmental Sciences and Engineering, Gillings School of Global Public Health, UNC-Chapel Hill, NC. Research advisor: Urmila Kodavanti

Former Graduate Student Supervision-Primary Advisor (41 total; 16 Ph.D., 25 M.S.):

Ph.D.:

1. **Anastasia Freedman (Ph.D.)** **2020-2024**
   Primary advisor of supervisory committee. Topic: Toxic metals and placental toxicity. Department: Environmental Sciences and Engineering, Gillings School of Global Public Health, UNC-Chapel Hill, NC. *Next position: ICF consulting*
2. **Carmen Marable (Ph.D.)** **2019 -2023**
   Primary advisor of supervisory committee. Topic: Placenta-brain axis. Department: Neuroscience, UNC-Chapel Hill, NC. *Next position: Environmental Consulting*
3. **Jeliyah Clark (Ph.D.)** **2018 -2022**
   Primary advisor of supervisory committee. Title: *Nutritional modulation of fetal susceptibility to arsenic-associated lower birth weight. Department: Environmental Sciences and Engineering, Gillings School of Global Public Health, UNC-Chapel Hill, NC. Next position: Post-doctoral researcher Pasteur Institute*
4. **Lauren Eaves (Ph.D.)** **2018 -2022**
   Primary advisor of supervisory committee. Department: Environmental Sciences and Engineering, Gillings School of Global Public Health, UNC-Chapel Hill, NC. Title: *Metal mixtures and preterm birth: private well water exposure and the role of the placenta. Next position: Assistant Professor UNC Chapel Hill*
5. **Kezia Addo (Ph.D.)** **2018-2020**
   Primary advisor of supervisory committee. Department: Curriculum in Toxicology, UNC. Title: *Acetaminophen and developmental toxicity. A Translational Approach to Examine the Effects of Acetaminophen on the Human Placenta. Next position: ICF consulting*
6. **Bevin Blake (Ph.D.)** **2017-2020**
   Co-advisor of supervisory committee. Department: Curriculum in Toxicology. UNC. Title: *Assessing the Effects of Perfluoroalkyl Substance Exposure Using Transdisciplinary Science*. *Next position: Post-doctoral researcher: EPA*
7. **Cassandra Meakin (Ph.D.)** **2017 -2020**
   Primary advisor of supervisory committee. Department: Environmental Sciences and Engineering, Gillings School of Global Public Health, UNC-Chapel Hill, NC. Title: *Inorganic arsenic as an endocrine disruptor in the placenta: implication for the glucocorticoid receptor (GR) signaling pathway in trophoblasts*. *Next position: Post-doctoral researcher Rutgers University; Current position: Environmental consulting*
8. **Paige Bommarito (Ph.D.)** **2015-2020**
   Primary advisor of supervisory committee. Department: Environmental Sciences and Engineering, Gillings School of Global Public Health, UNC-Chapel Hill, NC. Focus: Cadmium, miRNAs and pregnancy. Title: *Associations between Toxic Metals and Preeclampsia: A Transdisciplinary Approach. Next position: Post-doctoral researcher*
9. **Lisa Smeester (Ph.D.)** **2013-2018**
   Primary advisor of supervisory committee. Department: Environmental Sciences and Engineering, Gillings School of Global Public Health, UNC-Chapel Hill, NC. Title: *A Critical Role for Imprinted Genes in The Placenta in The Developmental Origins of Health and Disease*. *Current position: Scientific Program manager*
   Martha Scott Tomlinson (Ph.D.) **2014-2018**
   Primary advisor of supervisory committee. Department: Environmental Sciences and Engineering, Gillings School of Global Public Health, UNC-Chapel Hill, NC. Title: *Placental microbes as an indicator of neurocognitive outcomes in children born preterm. Current position: EPA*
10. **Dami Adebambo (Ph.D.)** **2013-2018**
    Co-advisor of supervisory committee. Department: Biological Sciences (Toxicology & Zoology), NC-State University. Title: *Cadmium Exposure and its Impact on the Pathogenesis of Preeclampsia*. Awards: Best Poster, Health Sciences Section at the NIEHS Superfund Research Program Meeting, San Juan, Puerto Rico 2015; KC Donnelly Award. *Next position: Post-doctoral researcher*
11. **Jessica Laine (Ph.D.)** **2011-2017**
    Primary advisor of supervisory committee. Department: Epidemiology, Gillings School of Global Public Health, UNC-Chapel Hill, NC. Title: *Investigation of exposure to iAs during pregnancy, nutritional biomarkers, iAs metabolism and adverse birth outcomes.* Awards: KC Donnelly Award. *Current position: researcher*
12. **Elizabeth Sebastian (Ph.D.)** **2014-2017**
    Primary advisor of supervisory committee. Department: Environmental Sciences and Engineering, Gillings School of Global Public Health, UNC-Chapel Hill, NC. Title: *The use of metabolomics profiling to elucidate*

mechanisms underlying arsenic-associated diabetes. Awards: Karen Wetterhahn Award. *Next position: ICF consulting. Next position: Post-doctoral researcher NIEHS; Current position: ICF consulting*

13. **Allison Sanders (Ph.D.)** **2009-2013**
Primary advisor of supervisory committee. Department: Environmental Sciences and Engineering, Gillings School of Global Public Health, UNC-Chapel Hill, NC. Title: *Environmental metals and birth defects: New approaches to understanding the role of metals in congenital heart defects.* Awards: GEAB Impact Award, UNC-Chapel Hill. 2013; Poster Presentation Award, National Birth Defects Prevention Network Annual Meeting, Alexandria VA 2012; GEAB Impact Award, UNC-Chapel Hill. 2011. *Next position: Post-doctoral researcher Mt. Sinai; Current position Assistant Professor University of Pittsburgh*
14. **Raju Prasad (Ph.D.)** **2009-2013**
Co-advisor of supervisory committee. Department: Environmental Sciences and Engineering, Gillings School of Global Public Health, UNC-Chapel Hill, NC. Title: *Evaluation of genotoxicity and cellular responses upon exposure to titanium dioxide nanoparticles.* Awards: EMS travel award (2012); SOT travel award (2012). *Current position: Chief financial officer CRISPR*
15. **Julia Rager (Ph.D.)** **2009-2013**
Department: Environmental Sciences and Engineering, Gillings School of Global Public Health, UNC-Chapel Hill, NC. Title: *A Systems Biology-Based Approach to Investigating Formaldehyde's Effects on MicroRNA Expression Profiles.* Awards: Poster Award (NC SOT 2013); Syngenta Award (SOT 2013); Graduate Student Fellowship – Novartis Award (SOT 2012); George C. Bunker Award for Outstanding Scholarship and Professional Promise in Environmental Engineering (UNC 2011); Best Student Presentation in Mixture Toxicology (SOT 2011). *Next position: EPA post-doctoral researcher; Current position: Assistant Professor UNC Chapel Hill*

M.S./M.S.E.E./M.S.P.H.:

1. **Jayraj Jonnalagadda** (**M.P.H.**) **2022-2023**
Primary advisor of supervisory committee. Department: Environmental Sciences and Engineering, Gillings School of Global Public Health, UNC-Chapel Hill, NC.
2. **Jenna Frey (M.P.H.)** **2022-2023**
Primary advisor of supervisory committee. Department: Environmental Sciences and Engineering, Gillings School of Global Public Health, UNC-Chapel Hill, NC.
3. **Kristina Stuckey (M.S.P.H.)** **2022-2023**
Primary advisor of supervisory committee. Department: Environmental Sciences and Engineering, Gillings School of Global Public Health, UNC-Chapel Hill, NC.
4. **Noemi Gavino Lopez (M.S.)** **2021-2022**
Primary advisor of supervisory committee. Department: Environmental Sciences and Engineering, Gillings School of Global Public Health, UNC-Chapel Hill, NC.
Primary advisor of supervisory committee. Department: Environmental Sciences and Engineering, Gillings School of Global Public Health, UNC-Chapel Hill, NC. Title: *Environmental Justice*.
5. **Arjun Keshava (M.P.H.)** **2020-2021**
Primary advisor of supervisory committee. Department: Environmental Sciences and Engineering, Gillings School of Global Public Health, UNC-Chapel Hill, NC. Title: *Effect of Climate Change on Environmental Effects, Health Outcomes, and Interventions.* Practicum advisor: Paul Lanier
6. **Niharika Palakodety (M.S.P.H.)** **2019-2020**
Primary advisor of supervisory committee. Department: Environmental Sciences and Engineering, Gillings School of Global Public Health, UNC-Chapel Hill, NC. Title: *Effects of Cadmium Exposure on Syncytialization in Relation to Placental Cell Formation and Function*.
7. **Caroline Reed (M.S.)** **2018-2019**
Primary advisor of supervisory committee. Department: Environmental Sciences and Engineering, Gillings School of Global Public Health, UNC-Chapel Hill, NC. Title: *Toxic and essential metals accumulation in the placenta and fetal membrane: an examination in relation to preterm birth risk in a NC cohort.*
8. **Gabriella Gallo (M.S.)** **2017-2018**
Primary advisor of supervisory committee. Department: Environmental Sciences and Engineering, Gillings School of Global Public Health, UNC-Chapel Hill, NC. Title: *Prenatal arsenic exposure is associated with*

decreased mitochondrial DNA copy number and increased genomic indicators of reactive oxygen species in newborn cord blood leukocytes.

9. **Cassandra Meaken (M.S.)** **2016-2018**
   Primary advisor of supervisory committee. Department: Environmental Sciences and Engineering, Gillings School of Global Public Health, UNC-Chapel Hill, NC. Title: *Inorganic arsenic as an endocrine disruptor: modulation of the Glucocorticoid Receptor Pathway and implications for placental physiology.*
10. **Sloane Tilley (M.S.)** **2015-2017**
    Primary advisor of supervisory committee. Department: Environmental Sciences and Engineering, Gillings School of Global Public Health, North Carolina, UNC. Title: *Analysis of Bladder Cancer Tumor CpG Methylation and Gene Expression within The Cancer Genome Atlas Identifies GRIA1 as a Prognostic Biomarker for Basal-Like Bladder Cancer*
11. **Andrew Nyguyen (M.S.)** **2015-2016**
    Primary advisor of supervisory committee Environmental Sciences and Engineering, Gillings School of Global Public Health, North Carolina, UNC. Title: *Using Tox-Pi to Rank ATSDR chemicals.*
12. **Cataia Ives (M.S.)** **2015-2016**
    Primary advisor of supervisory committee. Department: Environmental Sciences and Engineering, Gillings School of Global Public Health, North Carolina, UNC. Title: *Adverse outcome pathways.*
13. **Lisa Smeester (M.S.)** **2013-2016**
    Primary advisor of supervisory committee. Department: Environmental Sciences and Engineering, Gillings School of Global Public Health, North Carolina, UNC. Title: *Epigenetic changes associated with arsenic exposure*.
14. **Samantha Tulenko (M.S.P.H.)** **2014-2015**
    Primary advisor of supervisory committee Environmental Sciences and Engineering, Gillings School of Global Public Health, North Carolina, UNC. Title: *Identifying biological pathways associated with highest ranking ATSDR chemicals.*
15. **Andrew Yosim (M.S.)** **2014-2015**
    Primary advisor of supervisory committee Environmental Sciences and Engineering, Gillings School of Global Public Health, North Carolina, UNC. Title: *Estimating relationships between arsenic exposure through rice consumption and disease.*
16. **Yvette Nyguyen (M.S.)** **2013-2014**
    Primary advisor of supervisory committee Environmental Sciences and Engineering, Gillings School of Global Public Health, North Carolina, UNC. Focus: *Inflammation-related proteins and preeclampsia.*
17. **Joann Gruber (M.S.)** **2011-2012**
    Primary advisor of supervisory committee. Department: Epidemiology, Gillings School of Global Public Health, North Carolina, UNC. Focus: *Gene-Environment Interactions and newborn health effects*.
18. **Rhea Patel (M.S.)** **2010-2012**
    Primary advisor of supervisory committee: Department: Environmental Sciences and Engineering, Gillings School of Global Public Health, North Carolina, UNC. Graduation: May 2012. Thesis title: *The NF-kB pathway integrates metals biomarkers in children*
19. **Paul Ebohon (M.S.)** **2009-2011**
    Co-advisor of supervisory committee. Department: Environmental Sciences and Engineering, Gillings School of Global Public Health, North Carolina, UNC; Graduation: May 2012. Thesis title: *Screening Disinfection By-Products and Phenolic Compounds for Estrogenic Activity.* Primary Advisor: Howard Weinberg.
20. **Julia Rager (M.S.E.E.)** **2009-2010**
    Primary advisor of supervisory committee. Department: Environmental Sciences and Engineering, Gillings School of Global Public Health, North Carolina, UNC. Graduation: May 2010. Thesis title: *A Systems Biology Approach to Investigate Human Lung Cell Response to Air Pollutants*
21. **Nikia Smith (M.S.)** **2008-2010**
    Primary advisor of supervisory committee: Department: Environmental Sciences and Engineering, Gillings School of Global Public Health, North Carolina, UNC. Graduation: May 2010. Thesis title: *Environmental Epigenomics: Altered DNA Methylation Patterns in Humans Exposed to Inorganic Arsenic.*
22. **Margaret Ann Benton (M.S.P.H)** **2008-2010**

Primary advisor of supervisory committee. Department: Environmental Sciences and Engineering, Gillings School of Global Public Health, North Carolina, UNC; Graduation: May 2010. Thesis title: *Comparative Genomic Analysis Identifies Common Tumorigenesis-Associated Pathways Modulated by Exposure to Low Dose Arsenic or Cadmium*

23. **Qian Liu (M.S.P.H.)** **2008-2010**
Primary advisor of supervisory committee. Department: Environmental Sciences and Engineering, Gillings School of Global Public Health, North Carolina, UNC. Graduation: May 2010. Thesis title: *Using systems biology approaches to identify gene biomarkers of tumor cell response to chemical compounds.*
24. **Daniel Rojas (M.S.)** **2012-2014**
Primary advisor of supervisory committee. Department: Curriculum in Toxicology, School of Medicine, UNC. Focus*: Epigenetic changes associated with environmental contaminants.*
25. **Gayatri Ankem (M.S.)** **2010-2013**
Primary advisor of supervisory committee: Department: Environmental Sciences and Engineering, Gillings School of Global Public Health, North Carolina, UNC. Graduation: Focus: *Metals exposure and neurodevelopmental effects.*

Former undergraduate Honors Student Supervision-Primary Advisor (5 honors students)

1. **Emery Hoos** **2023-2024**
Primary advisor of supervisory committee Environmental Sciences and Engineering, Gillings School of Global Public Health, North Carolina, UNC. Focus: *Racial disparities in endometrial cancer*.
2. **Vennela Avula** **2019-2020**
Primary advisor of supervisory committee Environmental Sciences and Engineering, Gillings School of Global Public Health, North Carolina, UNC. Focus: *Effects of Inorganic Arsenic on the Epithelial-Mesenchymal Transition, Migration, and Invasion of Placental Cells.*
3. **Kirsi Oldenburg** **2019-2020**
Primary advisor of supervisory committee Environmental Sciences and Engineering, Gillings School of Global Public Health, North Carolina, UNC. Focus: *The Evaluation of Placental Inflammation via the Genomic Inflammatory Index (GII) in Relation to Key Perinatal Factors.*
4. **Saideep Gona** **2015-2016**
Primary advisor of supervisory committee Environmental Sciences and Engineering, Gillings School of Global Public Health, North Carolina, UNC. Focus: *Transcription factor occupancy and DNA methylation patterns.*
5. **Yvette Nyguyen** **2013-2014**
Primary advisor of supervisory committee Environmental Sciences and Engineering, Gillings School of Global Public Health, North Carolina, UNC. Focus: *Inflammation-related proteins and preeclampsia.*

Former undergraduate Honors Student Supervision-Committee Member (2 honors students)

1. **Celeste Carberry** **2019-2020**
Committee member of supervisory committee Environmental Sciences and Engineering, Gillings School of Global Public Health, North Carolina, UNC. Primary advisory: Julia Rager. Focus: *Non-targeted analysis of placentas from preeclamptic patients identifies links to acetaminophen and molecular alterations relevant to cell death.*
2. **Alexis Payton** **2019-2020**
Committee member of supervisory committee Environmental Sciences and Engineering, Gillings School of Global Public Health, North Carolina, UNC. Primary advisory: Julia Rager. Focus: *Placental Genomic and Epigenomic Signatures Regulating Infant Birth Weight Highlight Mechanisms Involved in Collagen and Growth Hormone Signaling.*

Graduate Student Supervision-Committee Member (ESE) (22 total: 15 Ph.D., 7 M.S. or M.S.P.H.)

Ph.D.:

1. **Celeste Carberry (Ph.D.)** **2022-current**
Member of supervisory committee. Environmental Science and Engineering, School of Medicine, North Carolina, UNC; Advisor: Julia Rager
2. **Lauren Koval (Ph.D.)** **2022-current**

Member of supervisory committee. Environmental Science and Engineering, School of Medicine, North Carolina, UNC; Advisor: Julia Rager

3. **Jennifer Griggs (Ph.D.)** **2015-2020**
   Member of supervisory committee. Department: Environmental Sciences and Engineering, Gillings School of Global Public Health, North Carolina, UNC; *Thesis title: "Bioacessibility of arsenic and the impact of the microbiome."* Academic Advisor: Rebecca Fry; Research advisor: Karen Bradham.
4. **Elizabeth Corteselli (Ph.D.)** **2012-2019**
   Member of supervisory committee. Department: Environmental Sciences and Engineering, Gillings School of Global Public Health, North Carolina, UNC; Thesis title: "*Polyunsaturated fatty acids as determinants of redox changes and inflammatory responses in human airway epithelial cells exposed to ozone"* Academic Advisor: Rebecca Fry; Research advisor: Jim Samet.
5. **Sean Watford (Ph.D.)** **2012-2017**
   Member of supervisory committee. Department: Environmental Sciences and Engineering, Gillings School of Global Public Health, North Carolina, UNC; *Thesis title: "Interoperability in Toxicology: Connecting Chemical, Biological, and Complex Disease Data."* Academic Advisor: Rebecca Fry; Research advisor: Matt Martin.
6. **Breanne Holmes (Ph.D.)** **2012-2017**
   Member of supervisory committee. Department: Environmental Sciences and Engineering, Gillings School of Global Public Health, North Carolina, UNC; *Thesis title: "Occurrence and control of estrogenic and androgenic activity in water."* Advisor: Howard Weinberg.
7. **Joseph Zabinski (Ph.D.)** **2015-2017**
   Member of supervisory committee. Department: Environmental Sciences and Engineering, Gillings School of Global Public Health, North Carolina, UNC; *Thesis title: "Advancing environmental human health risk assessment through Bayesian network analysis."* Advisor: Jackie Macdonald-Gibson.
8. **Maiko Arashiro (Ph.D.)** **2011-2017**
   Member of supervisory committee. Department: Environmental Sciences and Engineering, Gillings School of Global Public Health, North Carolina, UNC; Graduation: May 2017. *Thesis title: "Understanding the Bioolgical Effects of Isoprene-derived Secondary Organic Aerosol."* Advisor: Jason Surratt.
9. **Maya Nadmipalli (Ph.D.)** **2011-2015**
   Member of supervisory committee. Department: Environmental Sciences and Engineering, Gillings School of Global Public Health, North Carolina, UNC; Graduation: May 2015. *Thesis title: "Exposure to zoonotic Staphylococcus aureus among industrial hog operation workers and their household contacts in North Carolina, and dissemination into the household environment."* Advisor: Jill Stewart.
10. **Sarah Hatcher (Ph.D.)** **2011-2015**
    Member of supervisory committee. Department: Environmental Sciences and Engineering, Gillings School of Global Public Health, North Carolina, UNC; Graduation: May 2015. *Thesis title: "Environmental and occupational transmission routes of antibiotic-resistant staphylococcus aureus in regions of high industrial hog operation density."* Advisor: Jill Stewart.
11. **Grace Chappell (M.S.P.H., Ph.D.)** **2012-2015**
    Member of supervisory committee. Department: Environmental Sciences and Engineering, Gillings School of Global Public Health, North Carolina, UNC; Graduation: April 2014. *Thesis title: "Assessement of DNA copy number alterations in mouse and human hepatocellular carcinoma."* Advisor: Ivan Rusyn.
12. **Connie Kang (Ph.D.)** **2008-2010**
    Member of supervisory committee. Department: Environmental Sciences and Engineering, Gillings School of Global Public Health, North Carolina, UNC; Graduation: May 2010. Thesis title: *"Keratin Adducts as biomarkers for dermal exposure to jet fuel JP-8 in USAF fuel-cell maintenance personnel."* Advisor: Leena Nylander-French.
13. **Rebecca Clewell (Ph.D.)** **2008-2010**
    Member of supervisory committee. Department: Environmental Sciences and Engineering, Gillings School of Global Public Health, North Carolina, UNC; Graduation: May 2010. Thesis Title: *"Mode of Action Studies with Phthalate Acid Monoesters: Pharmacokinetic and Pharmacodynamic Factors Affecting Steroidogenesis."* Advisor: Louse Ball.
14. **Dan Gatti (Ph.D.)** **2008-2010**
    Member of supervisory committee. Department: Environmental Sciences and Engineering, Gillings School of Global Public Health, North Carolina, UNC; Graduation: May 2010. Thesis title: *"Genome-wide Analysis of Transcriptional Regulation in the Murine Liver."* Advisor: Ivan Rusyn.

15. **Courtney Woods (Ph.D.)** **2003-2006**
Member of supervisory committee. Department: Environmental Sciences and Engineering, Gillings School of Global Public Health, North Carolina, UNC; Graduation: May 2006. Thesis title: *"Role of Nuclear Receptor-Independent Pathways in the Mechanism of Action of Peroxisome Proliferators."* Advisor: Ivan Rusyn.

M.S./M.S.E.E./M.S.P.H.:

1. **Katlyn Phillips (M.S.)** **2015-2017**
Member of supervisory committee. Department: Environmental Sciences and Engineering, Gillings School of Global Public Health, North Carolina, UNC; "*Viability of Cultured Primary Human Skin Cells Treated with HDI monomer and HDI Isocyanurate."* Advisor: Leena Nylander French.
2. **Laura Taylor (M.S.)** **2015-2017**
Member of supervisory committee. Department: Environmental Sciences and Engineering, Gillings School of Global Public Health, North Carolina, UNC; "*Influence of Genetic Variance on Occupational Exposure to 1,6-Hevamethylene diisocyanate isocyanurate"* Advisor: Leena Nylander French.
3. **Kathleen Mcdermott (M.S.)** **2015-2017**
Member of supervisory committee. Department: Environmental Sciences and Engineering, Gillings School of Global Public Health, North Carolina, UNC; "*Monitoring the Removal of Estrogenic Activity in Wastewater Treated by a Pilot-Scale Constructed Wetland using the Yeast Estrogen Screen*" Advisor: Howard Weinberg.
4. **Sean Watford (M.S.P.H.)** **2012-2014**
Member of supervisory committee. Department: Environmental Sciences and Engineering, Gillings School of Global Public Health, North Carolina, UNC; Graduation: April 2014. Thesis title: *"Building bridges between toxicity testing in the 21st century and regulatory decision making through interactive web applications."* Advisor: Ivan Rusyn.
5. **Andrew Shapiro (M.S.P.H.)** **2012-2014**
Member of supervisory committee. Department: Environmental Sciences and Engineering, Gillings School of Global Public Health, North Carolina, UNC; Graduation: April 2014. Thesis title: *"Health Assessment Workspace Collaborative (HAWC)."* Advisor: Ivan Rusyn.
6. **Jimmy Phuong (M.S.P.H.)** **2012-2014**
Member of supervisory committee. Department: Environmental Sciences and Engineering, Gillings School of Global Public Health, North Carolina, UNC; Graduation: April 2014. Thesis title: *"Structured Application of Biological Ontologies to Annotate High-Throughput Screening Assays and their targets of activity."* Advisor: Ivan Rusyn.
7. **Rebecca Milsk (M.S.)** **2010-2012**
Member of supervisory committee. Department: Environmental Sciences and Engineering, Gillings School of Global Public Health, North Carolina, UNC; Graduation: May 2012. Thesis title: *"Comparative cytotoxicity of drinking water disinfection by-product mixtures produced during chlorination and chloramination."* Advisor: Howard Weinberg.

Graduate Student Supervision-Committee Member, Curriculum in Toxicology (13 total; 13 Ph.D.)

1. **Brittany Rickard (Ph.D.)** **2020-2024**
Chair of committee. Curriculum in Toxicology, School of Medicine, North Carolina, UNC; Advisor: Imran Rizvi/ Sue Fenton
2. **Jessica Jimenez (Ph.D.)** **2018-2022**
Chair of committee. Curriculum in Toxicology, School of Medicine, North Carolina, UNC; Advisor: Mark Zylka.
3. **Yael Escobar (Ph.D.)** **2015-2020**
Chair of committee. Curriculum in Toxicology, School of Medicine, North Carolina, UNC; Advisor: Ilona Jaspers.
4. **Ryan Snyder (Ph.D.)** **2014-2019**
Chair of committee. Curriculum in Toxicology, School of Medicine, North Carolina, UNC; Advisor: Ilona Jaspers.
5. **Alisa Suen (Ph.D.)** **2012-2017**
Chair of committee. Curriculum in Toxicology, School of Medicine, North Carolina, UNC; Advisor: Carmen Williams.
6. **Samira Brooks (Ph.D.)** **2010-2015**

Member of committee. Curriculum in Toxicology, School of Medicine, North Carolina, UNC; Advisor: Kim Rathmell.

7. **Jenna Currier (Ph.D.)** **2008-2013**
   Member of committee. Curriculum in Toxicology, School of Medicine, North Carolina, UNC; Advisor: Mirek Styblo.
8. **Madisa Macon (Ph.D.)** **2008-2014**
   Member of supervisory committee. Curriculum in Toxicology, School of Medicine, North Carolina, UNC; Advisor: Sue Fenton.
9. **Jessica Sorrentino (Ph.D.)** **2008-2013**
   Member of committee. Curriculum in Toxicology, School of Medicine, North Carolina, UNC; Advisor: Ned Sharpless.
10. **Emma Bowers (Ph.D.)** **2012-2018**
    Member of committee. Curriculum in Toxicology, School of Medicine, North Carolina, UNC; Advisor: David Diaz-Sanchez.
11. **Andres Henriquez-Coria (Ph.D.)** **2012-2018**
    Member of committee. Curriculum in Toxicology, School of Medicine, North Carolina, UNC; Advisor: Urmila Kodavanti.
12. **Mimi Huang (Ph.D.)** **2013-2018**
    Member of committee. Curriculum in Toxicology, School of Medicine, North Carolina, UNC; Advisor: Mirek Styblo.
13. **Katelyn Lavrich (Ph.D.)** **2013-2018**
    Member of committee. Curriculum in Toxicology, School of Medicine, North Carolina, UNC; Advisor: James Samet.

Graduate Student Supervision-Committee member, Department of Epidemiology, UNC-Chapel Hill (1 total; 1 Ph.D.)

1. **Evans Lodge (Ph.D.)** **2017-2022**
   Member of committee. Department of Epidemiology, UNC-Chapel Hill, North Carolina, Advisor: Alison Aiello.

Graduate Student Supervision-Committee member, Duke University (2 total; 2 Ph.D.)

1. **Chris Leonetti (Ph.D.)** **2011-2016**
   Member of committee. Duke University, North Carolina, Advisor: Heather Stapleton.
2. **Sam Hall (Ph.D.)** **2019-2022**
   Member of committee. Duke University, North Carolina, Advisor: Heather Stapleton.

Graduate Student Supervision-Committee member, UNC-School of Medicine (1 total; 1 Ph.D.)

1. **Alex Carlson (M.D., Ph.D.)** **2017-2019**
   Member of committee. UNC-School of Medicine, North Carolina, Advisor: Rebecca Santelli.

Post-doctoral advisees (13 total; 13 former)

1. Catherine Bulka **2017-2022**
   - Topic: Prenatal exposure to metals and health effects in the preterm
   - Next position: Assistant Professor, University of Florida, FL
2. Lei Zhang **2020-2022**
   - Topic: The preterm infant and neurodevelopmental outcomes
   - Next position: Assistant Professor, Duke Kunshan University, China
3. Abhishek Venkatratnam **2017-2021**
   - Topic: Preconception arsenic exposure and health effects
   - Next position: Scientist, India
4. John Szilagyi **2018-2020**
   - Topic: Placental toxicity of PFAS
   - Next position: Researcher, Bristol Myers Squibb, Summit, NJ
5. Jackie Bangma **2017-2020**
   - Topic: PFAS accumulation in the placenta
   - Next position: Post-doctoral researcher, EPA; Current position: Independent Researcher, EPA

6. Samira Brooks **2015-2017**
   - Topic: Cadmium as a placental toxicant
   - Next position: NCI Cancer Fellow; MS Johns Hopkins
7. James Sollome **2014-2015**
   - Topic: miRNAs and their regulating transcription factors
   - Next position: Regulatory Protein Biochemist BASF
8. Monica Nye **2014-2015**
   - Topic: Metals and their effects on imprinted genes
   - Next position: Lecturer, UNC Charlotte
9. Jill Johnston (co-advisor) **2014-2015**
   - Risk factors for cadmium exposure in pregnant women
   - Next position: Assistant Professor, University of Southern California
10. Paul Ray **2014-2015**
    - Topic: Incorporating epigenetic data into the risk assessment process
    - Next position: Scientist Synchrogenix
11. Bhavesh Ahir **2010-2013**
    - Topic: Prevention of arsenic-induced birth defects
    - Next position: Research Scientist at U. of Illinois, Chicago
12. Kathryn Bailey
    - Topic: Prenatal arsenic exposure-associated disease **2010-2013**
    - Next position: Scientist, Syngenta, NC
13. Elyse Lee **2009-2010**
    - Topic: DNA damage and repair
    - Next position: US-EPA, Washington, D.C.

Junior/Mid Career faculty mentees (n=5)

1. Tracy Manuck, K24 (Department of Obstetrics and Gynecology, UNC-Chapel Hill) **2020-present**
2. Folami Ideraabdulah, K22 (Department of Genetics, UNC-Chapel Hill) **2016-present**
3. Hudson Santos, K23 (Department of Nursing, UNC-Chapel Hill) **2017-present**
4. Aisha Dickerson, K99 (Harvard University) **2018-2020**
5. Kasia Kordas, Associate Professor (University of Buffalo) **2018-2022**

Graduate Student Supervisor **2002-2003**
Supervised research projects of graduate students in the Biological Engineering Department, MIT.

UROP Supervisor **2000-2003**
Trained and supervised undergraduates in microarray and genomics research techniques through the Undergraduate Research Opportunity Program (UROP), MIT.

Teaching Assistant **1995-1996**
Coordinated and taught laboratories: Vertebrate Physiology, General Ecology, and Introductory Biology, Tulane University.

Contracts and Grant Support

Active Grant Support:

- NIH, R01MD017947 (Fry/Manuck) 07/15/2023–11/30/2028
  Total Amount: $3,236,686
  Personalized care for prenatal stress reduction and preterm birth prevention
  Role: Principal Investigator
- NIH, UG3OD023348 (Fry/O'Shea) 09/21/2023–05/31/2025
  Total Amount: $1,301,924
  Environment, Epigenetics, Neurodevelopment & Health of Extremely Preterm Children
  Role: Principal Investigator

- NINR, R01NR019245 (Santos) 12/01/2021–11/30/2025
  Total Amount: $1,917,272
  Genetic and epigenetic effects on childhood cognitive trajectories
  Role: Co-Investigator
- NIH, P42ES031007 (Fry) 02/20/2020-01/31/2025
  Total Amount: $12,240,332
  The UNC-Chapel Hill Superfund Research Program
  Role: Principal Investigator
- NIEHS, T32-ES007018 (Fry/Engel/Zhou) 07/01/2022-06/30/2027
  Total Amount: $1,712,823
  Project: Biostatistics for Research in Environmental Health
  Role: Principal Investigator

Prior Grant Support:

- NIH, R01ES029925 (Fry/Styblo, Pardo-Manuel de Villena) 02/01/2019-01/31/2024
  Total Amount: $3,327,437
  Genetic underpinning of diabetes associated with arsenic exposure
  Role: Principal Investigator
- NIH, UH3OD023348 (Fry/O'Shea) 09/21/2016–08/31/2023
  Total Amount: $20,053,762
  Environment, Epigenetics, Neurodevelopment & Health of Extremely Preterm Children
  Role: Principal Investigator
- NIH, R01ES029531-01 (Fry/Keil) 09/01/2018–05/31/2023
  (NCE)
  Total Amount: $1,460,827
  Public Health Priority Setting for Environmental Metals Mixtures and Birth Defects
  Role: Principal Investigator
- NIEHS, R01ES028721 (Fry/Styblo) 09/01/2018–05/31/2023
  (NCE)
  Total Amount: $3,696,679
  Developmental windows for arsenic-associated diabetes
  Role: Principal Investigator
- NIMHD, R01-MD013349 (Harris) 08/14/2018-03/31/2023
  Total Amount: $3,500,000
  The ADD Health Epigenome Resource: Life Course Stressors and Epigenomic Modifications in Adulthood
  Role: Co-Investigator
- Lineberger Comprehensive Cancer Center (Fry) 07/01/2022-06/30/2023
  Total Amount: $49,823
  Toxic Metals in Private Well Drinking Water and Cancer Prevalence
  Role: Principal Investigator
- NIEHS, T32-ES007018 (Fry/Engel/Zhou) 07/01/2017-06/30/2022
  Total Amount: $1,712,823
  Project: Biostatistics for Research in Environmental Health
  Role: Principal Investigator
- NIH, R01-HD087061 (Harris) 09/09/2016–05/31/2021
  Total amount: $1,894,105
  Social Context, the Life Course, and Genetic Transcription in Add Health
  Role: Co-Investigator
- NIH, R01 ES026973 (Heaney) 07/01/2016–06/30/2021
  Total amount: $38,124
  Arsenic and Immune Response to Influenza Vaccination in Pregnant Women and Newborns
  Role: Principal Investigator of UNC subcontract
- NIH, R01 ES025124 (Peden) 03/01/2016–02/28/2021

Total amount: $1,921,410
Gamma Tocopherol Chemoprevention of Wood Smoke PM2.5-Induced Airway Inflammation
Role: Investigator
Role: Co-Investigator

- NIH R01HD092374 (Fry/O'Shea) 09/08/2017–05/31/2022
  Total amount: $3,490,000
  Placental Epigenome and Brain Dysfunction After Preterm Birth
  Role: Principal Investigator
- Burroughs Welcome (Fry) 07/01/2021-06/30/2022
  Total Amount: $115,993
  Equity and Environmental Justice Program (QUEST) internship
  Role: Principal Investigator
- Burroughs Welcome (Fry) 12/01/2021–11/30/2022
  Total Amount: $45,000
  Linking climate change and preterm birth in NC
  Role: Principal Investigator
- NIH, UG3OD023348 (Fry/O'Shea) 09/21/2016–08/31/2018
  Total Amount: $5,053,762
  Environment, Epigenetics, Neurodevelopment & Health of Extremely Preterm Children
  Role: Principal Investigator
- NIEHS, R01-ES022697 (Styblo) 12/31/2013-10/31/2017
  Total Amount: $1,045, 000
  Project: Mechanisms of Arsenic-Induced Diabetes Mellitus
  Role: Co-Investigator
- NIH, P50-HL120100 (Tarran) 09/19/2013-08/31/2018
  Total Amount: $2,648,046
  Project: The Impact of Tobacco Exposure on the Lung's Innate Defense System
- USEPA (CR-83591401) (Jaspers) 12/01/2015–01/30/2018
  Total amount: $1,008,228
  Cooperative Training Partnership between the U.S. EPA and the UNC-CH Training Collaboration in Toxicology and Environmental Sciences (TC-ToxES)
  Role: Co-Investigator
- NIEHS, R21 (Satterwhite) 09/01/2016-08/31/2018
  Total amount: $195,255
  Protecting Neurodevelopment in Latino Migrant Children by Reduced Exposure to Organophosphate Pesticides
  Role: Co-Investigator
- NIEHS, P42 ES005948 (Fry) 04/01/2011- 03/31/2018
  Total Amount: $3,179,000
  Project: UNC-Superfund Research Program
  Role: Principal Investigator
- NIEHS R13-ES027335 (Fry) 07/01/2016-06/30/2017
  Total amount: $8,000
  Prenatal Environmental Toxicants: Risk Factors for Infectious Disease in Children
  Role: Principal Investigator
- NIH, R01-ES024950 (Lu) 02/05/2015-11/30/2016
  Total amount: $2,958,130
  Functional Interaction between the Gut Microbiome and Arsenic Exposure
  Role: PI of UNC subcontract
- NIH, R03 HD80788 (Vora) 08/15/2014–07/31/2016
  Total Amount: $100,000
  Project: Determination of Fetal Gene Expression in Women with Preterm and Term Birth
  Role: Co-Investigator
- Texas Commission on Environmental Quality (Swenberg/Fry) 05/01/2012- 04/31/2015

Total Amount: $200,000
Project: Formaldehyde and Epigenetic Changes
Role: Principal Investigator

- NIEHS, R01-ES019315 (Fry) 10/01/2010- 05/31/2016
  Total Amount: $2,300,000
  Project: In Utero Exposure to Arsenic, Links to Epigenetic Alterations and Disease
  Role: Principal Investigator
- NIEHS, R01 Victer (Styblo) 10/01/2010- 09/30/2015
  Total Amount: $900, 000
  Project: Arsenic and Diabetes.
  Role: Co-Investigator
- Gillings Innovation Laboratory (Fry) 07/01/2010-6/30/2012
  Total Amount: $80, 000
  Project: Body-on-a-Chip: A New *In Vitro* Testing System to Predict Toxicity of Environmental Contaminants
  Role: Principal Investigator
- Water Research Foundation (Weinberg/Fry) 04/15/2010-04/31/2013
  Total Amount: $300, 000
  Title: Screening Endocrine Activity of DBP's
  Role: Principal Investigator
- Pfizer Scholar Grant in Public Health (Fry) 09/01/2009–08/31/2011
  Total Amount: $130, 000
  Project: Establishing a Biomonitoring Program in NC for Prenatal Metals Exposure.
  Role: Principal Investigator
- NIH, ARRA Supplement (Swenberg) 07/01/2009-06/30/2011
  Total Amount: $215,195
  Project: ARRA-SBRP: Environmental Exposure and Effect of Hazardous Chemicals (Administrative Supplement)
  Role: Co-Investigator
- CEHS-UNC Pilot project award (Fry) 06/01/2009–06/01/2010
  Total Amount: $30, 000
  Project: Mapping methylated DNA sites associated with arsenical-induced skin disease.
  Role: Principal Investigator
- NCTRACS Institute UNC (Fry) 03/01/2009-04/01/2010
  Total Amount: $10, 000
  Project: Identifying CpG Site Methylation Associated with Prenatal Metal (Cadmium) Exposure.
  Role: Principal Investigator
- NCTRACS Institute UNC (Jaspers) 03/01/2009-04/01/2010
  Total Amount: $10, 000
  Project: Identifying CpG methylation associated with ETS exposure.
  Role: Investigator
- Grant Number: 2 P30 CA014051-34 (Jacks) 06/30/2005-04/30/2010
  National Cancer Institutes
  Cancer Center Support (Core) Grant
  Role: Research Scientist; Director, Microarray Group
- P30-ES02109 (Samson) 04/15/2005-03/31/2010
  National Institute of Environmental Sciences
  MIT Center for Environmental Health Sciences
  Role: Research Scientist; Director, Genomics and Bioinformatics Group
- 5-U19-ES11399 (Samson) 09/30/2001-07/31/2006
  National Institute of Environmental Health Sciences
  Global Responses to Aflatoxin B1 and Alkylating Agents
  Project #2
  Role: Research Scientist

Professional Service

International Service

Committee member

- Member, PFOS and PFOA monograph, International Agency for Research on Cancer (IARC) 2023
- Member, External review committee for the Molecular and Carcinogenesis Group, International Agency for Research on Cancer Research (IARC) March 2020
- Chair, Fellowship Selection Committee, International Agency for Research on Cancer (IARC) 2018-2019
- Member, Fellowship Selection Committee, International Agency for Research on Cancer (IARC) 2015-2018

Service To Discipline:

External Advisor

- Environmental Protection Agency 2023-present
- External Advisor, University of Chicago, P30 Center 2023-present
- External Advisor, Dartmouth College, Superfund (P42) Research Program 2019-2022
- External Advisor, University of Buffalo, MSPH program 2021
- External Advisor, Harvard University P30 Center 2019-present
- External Advisor, Emory Hercules P30 Center 2019-present
- External Advisor, MIT Superfund (P42) Research Program 2018-present
- External Advisor, TaRGET II Consortium (T2C) 2016-2020

Committee member

- Member, EPA Board of Scientific Counselors (EPA Transcriptomic Assessment Product (ETAP)) review 2023
- Member, National Academies of Science SLAG risk review 2022-current
- Co-Chair, Environmental Influences of Child Health Outcomes (ECHO) Program, Evaluation and Mentoring Committee (PEM) 2021-current
- Chair, Peer Review for the National Toxicology Program (NTP) Review of the Developmental and Reproductive Toxicity (DART) Reports on: 2-Hydroxy-4-methoxybenzophenone (2H4MBP) and 2-Ethylhexyl p-methoxycinnamate (EHMC) September 2021
- Member, Search Committee, National Toxicology Program Director 2020-2021
- Co-Chair, Strategic Planning Task Force, Environmental Influences of Child Health Outcomes (ECHO) 2019-2020
- Scientific expert, Department of Defense (DOD): Trichloroethylene: occupational exposure levels August 2021
- Member, Advisory Board, 2018 NC Women's Health Report Card 2017-2019
- Member, Working Group, All of Us: Child Enrollment Scientific Vision 2017-2018
- Member, Steering Committee, Environmental Influences of Child Health Outcomes (ECHO) 2017-present
- Member, Risk review panel, Food and Drug Administration, 2015-2016

- Panel member, National Academies of Science (NAS) National Research Council for the Integrated Risk Information System (IRIS) review of inorganic arsenic 2012-2015

Editorial Board Member:

- Toxicological Sciences 2019-present
- Environmental Epigenetics 2015-present
- Mutation Research—Reviews 2015-present
- International Scholarly Research Network (ISRN), Genetics 2012-present

Invited reviewer:

- Environmental Science & Technology 2010-present
- Toxicological Sciences 2009-present
- Mutation Research/ Fundamental and Molecular Mechanisms of Mutagenesis 2009-present
- Physiological Genomics 2009
- Environmental Health Perspectives 2008-present

Invited member of review panel:

- NIH, Behavioral Genetics and Epidemiology (BGES) 2021
- NIEHS Environmental Health committee (T32 and P30) 2017-2020
- NIEHS ONES review committee 2015-present
- Department of Defense (DoD) review committee 2017
- NIEHS, R21 Study section (Chair) 2017
- NIEHS, P30 and T32 Study section 2016-current
- NIEHS, R13 Study section (Chair) 2016
- NAME study section 2014
- NIEHS Career Awards Grant Review Panel (K applications) 2012-2015
- NIEHS Superfund Project Grant Review Panel 2011-2015
- NIH Director's Early Independence Award 2015
- National Science Foundation (NSF) East Asia and Pacific Summer Institutes (EAPSI) program Grant Review Panel 2010

Member/leadership roles within scientific societies:

- SOT Awards Committee 2022-present
- SOT Metals Specialty Section, President 2017-2018
- SOT Metals Specialty Section, Vice-President 2016-2017
- SOT Metals Specialty Section, Vice-President elect 2015-2016
- Councilor, Genetics and Environmental Mutagenesis Society (GEMS), NC 2010-2012
- SOT, Councilor for Stem Cell Specialty Section 2011-2012
- SOT, Secretary/Treasurer for Metals Specialty Section 2013-2015

To the State of North Carolina:

Committees:

1. *Member, Selection Committee for Toxicologic Analysis of Coal Ash.* Chapel Hill, NC 2019

Invited presentations:

1. *&Environmental Justice at Home; EJ@HOME: UNC Gillings School of Global Public Health (virtual),* UNC Science Expo, Chapel Hill, NC. April 2021.
2. *PFAS and the placenta, N.C. DEQ and DHHS Secretaries' Science Advisory Board (SSAB),* Raleigh, NC. November 2019.
3. *Heath effects of toxic metals exposure in children.* Local Citizens Meeting, Lee County, NC. April 2016.
4. *Health effects of toxic metals exposure in children.* Civil Rights Meeting. Walnut Cove, NC. April 2016
5. *Heath effects of toxic metals exposure in children.* North Carolina DHHS. July 2015.
6. *Examining the biological mechanism underlying adverse health outcomes of arsenic exposure.* Water Quality and Human Health. UNC Superfund Research Program Teacher Training Activity. March 2015
7. *Toxic metals in the Environment and Children's Health.* North Central Environmental Health District. NC Public Health Association. 4th Quarterly Meeting. December 2014.
8. *Toxic metals in the Environment and Children's Health.* City Council Town of Eden. November 2014.
9. *Health effects of toxic metals on children.* NC Healthy Homes Task Force. May 2014.
10. *Toxic metals in the environment.* Science Café for the NC community. February 2014.

11. *Epigenetics: Genes and the Environment Integrating this Topic into your Biology Curriculum.* Professional Development Workshop for Biology Teachers from NC. July 2012.
12. *Is your well water safe*?" North Carolina Health Director's Meeting. February 2012.
13. *Tracking and Analyzing Contaminants in North Carolina's Private Wells.* North Carolina, DHHS. November, 2010

Practice:

1. *Collaborator, Well Empowered Study: investigating the presence of arsenic in well water, Union County* 2023-present
2. *Collaborator, Well Empowered Study: investigating the presence of arsenic in well water, Stanley County* 2019

Internal Service to UNC-Chapel Hill

1. *Scientific Advisor, Lead in water on campus* 2022-2023
2. *Member, UNC Faculty Council* 2013-2018
   Serve as Gillings School of Global Public Health Representative
3. *Director, Search Committee* July 2011
   Served as director of the search committee for a new Director for the Curriculum in Toxicology.
4. *Member, Executive Committee Curriculum in Toxicology* 2012-present
   Serve on Toxicology Executive Committee
5. *Member, Steering Committee* 2009-2016
   Served as environmental liason for the North Carolina Integrated Cancer Information and Surveillance System (ICISS). This project is funded through the Lineberger Cancer Center.

Internal Service to Gillings

1. *Co-Chair, Gillings Strategic Research Planning Committee* 2023- present
2. *Member, Gillings Research Council* 2021-present
3. *Chair, Search Committee (Assistant Dean for Academic Affairs)* February 2020
4. *Chair, Search Committee (Associate Dean for Research)* July 2018
5. *Chair, Gillings APT Committee* 2020-present
6. *Member, Gillings APT Committee* 2017-2019

Internal Service to the Department (Environmental Sciences and Engineering)

1. *Interim Chair* 2024-present
2. *Associate Chair, Strategic Initiatives* 2018-present
3. *Co-Chair, ESE Centennial Planning Committee* 2018-2021
4. *Member or Chair, Post-tenure Review Committee*s Fall 2016, Fall 2020, Spring 2020, Spring 2023
5. *Member, Search Committee for Departmental Chair* April 2016
6. *Chair, Search Committee for Faculty hire* 2015
7. *Member, ESE Academic Programs Committee* 2014-present
8. *Member, ESE Admissions Committee* 2013-2015
9. *Member, ESE Committee for BSPH Program* 2012
10. *Member, Search Committee* 2009
    Served on ESE Search Committee for Recruitment of a Research Associate Professor to direct ESE Smog Chamber Operations.