

## Joel N. Meyer

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### Employment

2023-present. **Duke University**: Professor, Nicholas School of the Environment.

Additional appointments:

Faculty member, Integrated Toxicology and Environmental Health Program, **Duke University** (2007-present)

Secondary appointment, Civil and Environmental Engineering, **Duke University** (2009-present)

Faculty member, Pharmacological Sciences Training Program, **Duke University** (2013-present)

Member, Duke Cancer Institute, **Duke University** (2013-present)

Affiliate, Duke Global Health Institute, **Duke University** (2016-present)

Member, Duke Institute for Brain Sciences, **Duke University** (2023-present)

Fixed Term Graduate Faculty, Environmental Science and Engineering, **UNC Chapel Hill** (2013-present)

2023-present. Visiting Investigator, **Universidad del Valle de Guatemala**.

2014-2023. **Duke University**: Associate Professor, Nicholas School of the Environment.

2007-2014. **Duke University**: Assistant Professor, Nicholas School of the Environment.

2003-2006. **National Institute of Environmental Health Sciences** (RTP, NC): Post-doctoral researcher (Intramural Research Training Award)

1995-1997. **Instituto de Estudios Avanzados José Martí** (Quetzaltenango, Guatemala): High School Teacher (Biology, English) and Program Director (English)

1993-1995. **Centro de Estudios de Español “Pop Wuj”** (Quetzaltenango, Guatemala): Translator and Appropriate Technology Work Projects Coordinator

### Education

Postdoctoral training 2003-2006 (mentor: Bennett Van Houten)

DNA Repair and Mitochondrial Damage Group, Laboratory of Molecular Genetics  
**National Institute of Environmental Health Sciences**, RTP, NC

Doctor of Philosophy 2003 (advisor: Richard Di Giulio)

Environmental Toxicology

Integrated Toxicology Program and Nicholas School of the Environment

**Duke University**, Durham, NC

Bachelor of Science 1992 (Magna Cum Laude)

Environmental Studies, Peace and Conflict Studies

**Juniata College**, Huntingdon, PA

### Honors

Bass Chair for Excellence in Research and Undergraduate Teaching (Truman and Nellie Semans/Alex Brown & Sons Associate Professor of Molecular Environmental Toxicology), 2017-2022

Outstanding New Environmental Scientist Award (NIEHS), 2011

### Professional affiliations

Environmental Mutagenesis and Genomics Society  
 Society of Environmental Toxicology and Chemistry  
 Society of Toxicology

### Peer-reviewed publications

\*corresponding author; †undergraduate

h index = 54, i10 index = 111, total citations = 11535 (December 2023, Google Scholar, excluding the Klionsky et al. 2016 multi-author review)

133. Timme-Laragy AR\*, Di Giulio RT, **Meyer JN**. 2024. Reactive oxygen species and redox stress. In The Toxicology of Fishes, 2<sup>nd</sup> edition (Willett KL and Aluru N, editors), CRC Press, Washington, DC.
132. Clark AS, Huayta J, Morton KS, Meyer JN, San-Miguel A\*. 2024. Morphological hallmarks of dopaminergic neurodegeneration are associated with altered neuron function in *Caenorhabditis elegans*. Neurotoxicology 100:100-106.
131. **Meyer JN\***, Pan WK, Ryde IT, Klein-Adams JC, Ndirangu DS, Alexander T, Falvo MJ. 2023. Bioenergetic function is decreased in peripheral blood mononuclear cells of veterans with Gulf War Illness. PLoS ONE e0287412. PMC10619881.
130. Morton KS, Hartman JH, Heffernan N†, Ryde IT, Kenny-Ganzert IW, Meng L, Sherwood DR, **Meyer JN\***. 2023. Chronic high-sugar diet in adulthood protects *Caenorhabditis elegans* from 6-OHDA induced dopaminergic neurodegeneration. BMC Biology 21:252. PMC10312447.
129. Lalwani PD†, King DE, Morton KS, Rivera NA, Huayta J, Hsu-Kim H, **Meyer JN**. 2023. Increased cytotoxicity of Pb<sup>2+</sup> with co-exposures to a mitochondrial uncoupler and mitochondrial calcium uniporter inhibitor. Environmental Science: Processes & Impacts 25: 1743 - 1751. PMC10681630.
128. Clark A, Kalmanson Z†, Morton KS, Hartman JH, **Meyer JN**, San Miguel A\*. 2023. An unbiased, automated platform for scoring dopaminergic neurodegeneration in *Caenorhabditis elegans*. PLoS ONE e0281797. PMC10328331.
127. Kozal JS\*, Jayasundara N, Massarsky A, Lindberg CD, Oliveri AN, Cooper EM, Levin ED, **Meyer JN**, Di Giulio RT. 2023. Mitochondrial dysfunction and oxidative stress contribute to cross-generational toxicity of benzo(a)pyrene in *Danio rerio*. Aquatic Toxicology 263:106658. PMC10591944.
126. Sparling AC†, King DE, **Meyer JN\***. 2023. *rol-6* and *dpy-10* *Caenorhabditis elegans* mutants have normal mitochondrial function after normalizing to delayed development. microPublication Biology 10.17912/micropub.biology.000798. PMC10193146.
125. Markovich Z†, Hartman JH, Ryde IT, Hershberger KA, Joyce AS, Ferguson PL, **Meyer JN\***. 2022. Mild pentachlorophenol-mediated uncoupling of mitochondria depletes ATP but does not cause an oxidized redox state or dopaminergic neurodegeneration in *Caenorhabditis elegans*. Current Research in Toxicology 3: 100084. PMC9361317.
124. Leuthner, TC, Benzing L†, Kohn BF, Bergemann CM, Hipp MJ, Hershberger KA, Mello DF, Sokolskyi T†, Stevenson K, Merutka IR, Seay SA, Gregory SG, Kennedy SR, **Meyer JN\***. 2022. Resistance of mitochondrial DNA to cadmium and aflatoxin B<sub>1</sub> damage-induced germline mutation accumulation in *Caenorhabditis elegans*. Nucleic Acids Research 50: 8626-8642. PMC9410910.
123. Berky AJ, Robie E, Chipa S, Ortiz EJ, Palmer EJ, Rivera NA, Morales-Avalos AM, **Meyer JN**, Hsu-Kim H, Pan WK\*. 2022. Risk of lead exposure from wild game

- consumption from cross-sectional studies in Madre de Dios, Peru. The Lancet Regional Health-Americas 12: 100266. PMC9555248.
122. Maglioni S, Schiavi A, Melcher M, Brinkmann V, Luo Z, Laromaine A, Raimundo N, **Meyer JN**, Distelmaier F, Ventura N.\* **2022**. Neuroligin-mediated neurodevelopmental defects are induced by mitochondrial dysfunction and prevented by lutein in *Caenorhabditis elegans*. Nature Communications 13: 2620. PMC9098500.
121. King DE, Sparling AC<sup>†</sup>, Lloyd D, Satusky MJ, Martinez M<sup>†</sup>, Grenier C, Bergemann CM, Maguire R, Hoyo C, **Meyer JN**, Murphy SK\*. **2022**. Sex-specific DNA methylation and associations with *in utero* tobacco smoke exposure at nuclear-encoded mitochondrial genes. Epigenetics 17: 1573-1589. PMC9620986.
120. Mello DF\*, Bergemann CM, Fisher K, Chitrakar R, Bijwadia SR<sup>†</sup>, Wang Y, Caldwell A, Baugh LR, **Meyer JN**\*. **2022**. Rotenone modulates *Caenorhabditis elegans* immunometabolism and pathogen susceptibility. Frontiers in Immunology 13: 840272. PMC8902048.
119. Joglekar R, Cauley M, Lipsich T, Corcoran DL, Patisaul HB, Levin ED, **Meyer JN**, McCarthy MM, Murphy SK\*. **2022**. Developmental nicotine exposure and masculinization of the rat preoptic area. Neurotoxicology 89: 41-54. PMC8917982.
118. Mello DM\*, Maurer LL, Ryde IT, Song DH, Marinakos SM, Jiang C, Wiesner MR, Hsu-Kim J, **Meyer JN**\*. **2022**. *In vivo* effects of silver nanoparticles on development, behavior and mitochondrial function are altered by genetic defects in mitochondrial dynamics. Environmental Science and Technology 56: 1113-1124. PMC8802983.
117. Maeso-Díaz R; Dalton GD; Oh S; Du K; Tang L; Chen T; Dutta RK, Hartman JHH; **Meyer JN**, Diehl AM\*. **2022**. Aging reduces liver resiliency by dysregulating Hedgehog signaling. Aging Cell 21: e13530. PMC8844109.
116. Leuthner TC, **Meyer JN**\*. **2021**. Mitochondrial DNA mutagenesis: Feature of and biomarker for environmental exposures and aging. Current Environmental Health Reports 8: 294-308 PMC8826492.
115. Bijwadia SR<sup>†</sup>, Morton KS, **Meyer JN**\*. **2021**. Quantifying levels of dopaminergic neuron morphological alteration and degeneration in *Caenorhabditis elegans*. Journal of Visualized Experiments 177: e62894 doi:10.3791/62894. PMC8815112.
114. King DE, Sparling AC<sup>†</sup>, Joglekar R, **Meyer JN**, Murphy SK\*. **2021**. Direct comparisons of bisulfite pyrosequencing versus targeted bisulfite sequencing. microPublication Biology 10.17912/micropub.biology.000444. PMC8377520.
113. Huang W, Liu Y, Luz AL, Berrong M, **Meyer JN**, Zou Y, Swann E, Sundaramoorthy P, Kang Y, Jauhari S, Lento W, Chao NJ, Racioppi L\*. **2021**. Calcium/Calmodulin-dependent protein kinase kinase 2 regulates the expansion of tumor-induced myeloid-derived suppressor cells. Frontiers in Immunology 12: 754083. PMC8546266.
112. Wang L, Mello DF, Geitner NK, Wiesner MR, Rivera N, Rogers N, Hsu-Kim H, Zucker RM, Boyes WK, **Meyer JN**\*. **2021**. Lack of detectable effects of silver nanoparticles on mitochondria in mouse hepatocytes. Environmental Science and Technology 55: 11166–11175. PMC8814061.
111. Hershberger KA, Rooney JP, Turner EA, Donoghue LJ<sup>†</sup>, Bodhicharla R, Maurer LL, Ryde IT, Kim JJ<sup>†</sup>, Joglekar R, Hibshman JD, Smith LL, Bhatt DP, Ilkayeva OR, Hirschey MD, **Meyer JN**\*. **2021**. Early-life mitochondrial DNA damage results in lifelong deficits in energy production mediated by redox signaling in *Caenorhabditis elegans*. Redox Biology 43: 102000. PMC8134077.
110. Hartman JH, Widmayer S, Bergemann CM, King DE, Morton KS, Romersi RF<sup>†</sup>, Jameson LE, Leung MC-K, Andersen EC, Taubert S, **Meyer JN**\*. **2021**. Xenobiotic

- metabolism and transport in *Caenorhabditis elegans*. Journal of Toxicology and Environmental Health, Part B: Critical Reviews 24: 54-91. PMC7958427.
109. Leuthner TC, Hartman JH, Ryde IT, **Meyer JN\***. 2021. PCR-based determination of mitochondrial DNA copy number in multiple species. Methods in Molecular Biology: Mitochondrial Regulation: Methods and Protocols (2<sup>nd</sup> edition) 2310: 91-111.
  108. González-Hunt CP, Luz AL, Ryde IT, Turner EA, Ilkayeva OR, Bhatt DP, Hirschey MD, **Meyer JN\***. 2021. Multiple pathways of mitochondrial regulation mediate the response of *Caenorhabditis elegans* to complex I inhibitor rotenone. Toxicology 447:152630. PMC7750303.
  107. Yang P, Shao Z, Besley NA, Neal SE, Buehne KL, Park J, Karageozian H, Karageozian V, Ryde IT, **Meyer JN**, Jaffe GJ\*. 2020. Risuteganib protects against hydroquinone-induced injury in human RPE cells. Investigative Ophthalmology & Visual Science 61:35. PMC7443126.
  106. Berky AJ, Robie E, Ortiz EJ, **Meyer JN**, Hsu-Kim H, Pan WK\*. 2020. Evaluation of government interventions to reduce childhood anemia. Annals of Global Health 86: 98 (1-10). PMC7427686.
  105. Zhang J, Hartman JH, Chen C, Yang S, Tian Z, Huang P-H, Wang L, **Meyer JN**, Huang TJ\*. 2020. Fluorescence-based sorting of *Caenorhabditis elegans* via acoustofluidics. Lab on a Chip 20:1729-1739. PMC7239761.
  104. Neal SE, Buehne KL, Besley N, Yang P, Silinski P, Hong J, Ryde IT, **Meyer JN**, Jaffe GJ\*. 2020. Resveratrol protects against hydroquinone-induced oxidative threat in retinal pigment epithelial cells. Investigative Ophthalmology & Visual Science 61:32. PMC7401947.
  103. Harris JB<sup>†</sup>, Hartman JH, Luz AL, Wilson JY, Dinyari A<sup>†</sup>, **Meyer JN\***. 2020. Zebrafish CYP1A expression in transgenic *Caenorhabditis elegans* protects from exposures to benzo[a]pyrene and a complex polycyclic aromatic hydrocarbon mixture. Toxicology 440:152473. PMC7313633.
  102. Nash A, Samoylova M, Leuthner TC, Zhu M, Lin L, **Meyer JN**, Brennan TV\*. 2020. Effects of immunosuppressive medications on T cell mitochondrial function. Journal of Surgical Research 249: 50-57. PMC7136143.
  101. Mello DF, Trevisan R, Rivera N, Geitner NK, Di Giulio RT, Wiesner MR, Hsu-Kim H, **Meyer JN\***. 2020. Caveats to the use of MTT, Neutral Red, Hoechst, and Resazurin to measure silver nanoparticle toxicity. Chemico-Biological Interactions 315: 108868. PMC7028487.
  100. Laranjeiro R, Harinath G, Hewitt JE, Hartman JH, Royal MA, **Meyer JN**, Vanapalli SA, Driscoll M\*. 2019. Swim exercise in *Caenorhabditis elegans* extends neuromuscular and gut healthspan, enhances learning ability, and protects against neurodegeneration. Proceedings of the National Academy of Sciences of the United States of America 116: 23829-23839. PMC6876156.
  99. Leung MCK\*, **Meyer JN**. 2019. Mitochondria as a target of organophosphate and carbamate pesticides: revisiting common mechanisms of action with new approach methodologies. Reproductive Toxicology 89: 83-92. PMC6766410.
  98. Maglioni S, Mello DF, Schiavi A, **Meyer JN**, Ventura N\*. 2019. Mitochondrial bioenergetics changes during development as an early indicator of *Caenorhabditis elegans* health-span upon mitochondrial stress. Aging 11: 6535-6554. PMC6738431.
  97. Smith LL, Ryde IT, Hartman JH, Romersi RF<sup>†</sup>, Markovich Z<sup>†</sup>, **Meyer JN\***. 2019. Strengths and limitations of morphological and behavioral analyses in detecting dopaminergic deficiency in *Caenorhabditis elegans*. Neurotoxicology 74: 209-220. PMC6751008.

96. Bachman H, Fu H, Huang P-S, Tian Z, Embry-Seckler J, Rufo J, Xie Z, Hartman JH, Zhao S, Yang S, **Meyer JN**, Huang TJ\*. **2019**. Open Source Acoustofluidics. Lab on a Chip 19: 2404-2414. PMC6934416.
95. Hershberger KA, Leuthner TC, Waters TA<sup>†</sup>, **Meyer JN\***. **2019**. *Caenorhabditis elegans* strain sensitivity to sodium arsenite exposure is varied based on age and outcome measured. microPublication Biology 10.17912/micropub.biology.000186. PMC7252313.
94. Hartman JH, González-Hunt CP, Hall SM<sup>†</sup>, Caldwell KA, Caldwell GA, Ryde IT, **Meyer JN\***. **2019**. Genetic defects in mitochondrial dynamics in *Caenorhabditis elegans* impact ultraviolet C radiation- and 6-hydroxydopamine-induced neurodegeneration. International Journal of Molecular Sciences 20: 3202. PMC6651461.
93. Zhang J, Yang S, Chen C, Hartman JH, Huang P-S, Wang L, Tian Z, Zhang SP, Faulkenberry D, **Meyer JN**, Huang TJ\*. **2019**. Surface acoustic waves enable rotational manipulation of *Caenorhabditis elegans*. Lab on a Chip 9: 984-992. PMC6659422.
92. Dreier DA, Mello DF, **Meyer JN**, Martyniuk CJ\*. **2019**. Linking mitochondrial dysfunction to organismal and population health in the context of environmental pollutants: Progress and considerations for mitochondrial adverse outcome pathways. Environmental Toxicology and Chemistry 8: 1625-1634. PMC6961808.
91. Berky A, Ryde IT, Feingold BJ, Ortiz E, Wyatt L, Weinhouse C, Hsu-Kim H, **Meyer JN\***, Pan WK\*. **2019**. Predictors of mitochondrial DNA copy number and damage in a mercury-exposed rural Peruvian population near artisanal and small-scale gold mining: an exploratory study. Environmental and Molecular Mutagenesis 60: 197-210. PMC6452630.
90. Hartman JH, Richie CT, Gordon KL, Mello DF, Castillo P, Zhu A, Wang Y, Hoffer BJ, Sherwood DR, **Meyer JN**, Harvey BK\*. **2019**. MANF deletion abrogates early larval *Caenorhabditis elegans* stress response to tunicamycin and *Pseudomonas aeruginosa*. European Journal of Cell Biology 98: 5-8. PMC7336501.
89. Hibshman JD, Leuthner TC, Mello DF, Shoben C, Sherwood DR, Meyer JN, Baugh LR\*. **2018**. Non-selective autophagy reduces mitochondrial content during starvation in *Caenorhabditis elegans*. American Journal of Physiology-Cell Physiology 315: C781-C792. PMC6336938.
88. Sanders LH\*, Rouanet JP, Howlett EH, Leuthner TC, Rooney JP, Greenamyre JT, **Meyer JN**. **2018**. Newly revised protocol for quantitative PCR-based assay to measure mitochondrial and nuclear DNA damage. Current Protocols in Toxicology 76: e50. PMC6060631.
87. Cothren SD, **Meyer JN**, Hartman JH\*. **2018**. Blinded visual scoring of images using the freely-available software Blinder. Bio-protocol 8(23): e3103. PMC6370323.
86. Weinhouse C\*, Truong L, **Meyer JN**, Allard P. **2018**. *Caenorhabditis elegans* as an emerging model system in environmental epigenetics. Environmental and Molecular Mutagenesis 59: 560-575. PMC6113102.
85. **Meyer JN\***, Hartman JH, Mello DF. **2018**. Mitochondrial Toxicity. Toxicological Sciences 162: 15-23. PMC5837373.
84. Hartman JH, Smith LL, Gordon KL, Laranjeiro R, Driscoll M, Sherwood DR, **Meyer JN\***. **2018**. Swimming exercise and transient food deprivation in *Caenorhabditis elegans* promote mitochondrial maintenance and protect against chemical-induced mitotoxicity. Scientific Reports 8: 8359. PMC5974391.
83. Maurer LL, Luz AL, **Meyer JN\***. **2018**. Detection of mitochondrial toxicity of environmental pollutants using *Caenorhabditis elegans*. In Mitochondrial Dysfunction

- Caused by Drugs and Environmental Toxicants, Volume II, First Edition, (Will Y and Dykens JA, editors), Wiley, Pp 655-689.
82. Luz AL, Kassotis CD, Stapleton HM, **Meyer JN\***. **2018**. The high production volume fungicide pyraclostrobin induces triglyceride accumulation associated with mitochondrial dysfunction, and promotes adipocyte differentiation independent of PPAR $\gamma$  activation, in 3T3-L1 cells. Toxicology 393: 150-159. PMC5726929.
  81. **Meyer JN\*** and Chan SS. **2017**. Sources, mechanisms, and consequences of chemical-induced mitochondrial toxicity. Toxicology 391: 2-4. PMC5681391.
  80. **Meyer JN\***, Leuthner TC, Luz AL. **2017**. Mitochondrial fusion, fission, and mitochondrial toxicity. Toxicology 391: 42-53. PMC5681418.
  79. Gonzalez-Moragas L, Maurer LL, Harms VM<sup>†</sup>, **Meyer JN**, Laromaine A, Roig A\*. **2017**. Materials and toxicological approaches to study metal and metal oxide nanoparticles in the model organism *Caenorhabditis elegans*. Materials Horizons 4: 719–746. PMC5648024.
  78. Chen Y, **Meyer JN**, Hill HZ, Lange G, Condon MR, Klein JC, Ndirangu D, Falvo MJ\*. **2017**. Role of mitochondrial DNA damage and dysfunction in veterans with Gulf War Illness. PLoS ONE 12: e0184832. PMC5599026.
  77. Hartman JH\*, Kozal JS, Di Giulio RT, **Meyer JN**. **2017**. Zebrafish have an ethanol-inducible hepatic 4-nitrophenol hydroxylase that is not CYP2E1-like. Environmental Toxicology and Pharmacology 54: 142-145. PMC5563387.
  76. Luz AL, Godebo TR, Smith LL, Leuthner T, Kubik LL, **Meyer JN\***. **2017**. Deficiencies in mitochondrial dynamics sensitize *Caenorhabditis elegans* to arsenite and other mitochondrial toxicants by reducing mitochondrial adaptability. Toxicology 387: 81-94. PMC5535741.
  75. Hartman JH\*, Miller GP, **Meyer JN**. **2017**. Toxicological implications of mitochondrial localization of CYP2E1. Toxicology Research 6: 273-289. PMC5627779.
  74. Weinstein JR, Asteria-Peñaloza R, Diaz-Artiga A, Davila G, Ryde IT, Hammond SK, **Meyer JN**, Benowitz N, Thompson LM\*. **2017**. Exposure to polycyclic aromatic hydrocarbons and volatile organic compounds among rural Guatemalan women cooking and heating with solid fuels. International Journal of Hygiene and Environmental Health 220: 726-735. PMC5474125.
  73. Lewis JJ, Hollingsworth JW, Chartier R, Cooper EM, Foster WM, Gomes G, Kussin P, MacInnis J, Padhi B, Panigrahi P, Rodes C, Ryde IT, Singha A, Stapleton HM, Thornburg J, Young C, **Meyer JN**, Pattanayak SK\*. **2017**. Biogas stoves reduce firewood use, household air pollution, and hospital visits in Odisha, India. Environmental Science and Technology 51: 560-569.
  72. Wyatt LH, Luz AL, Ryde IT, Cao X, Maurer LL, Blawas AM<sup>†</sup>, Aballay A, Pan WKY, **Meyer JN\***. **2017**. Effects of methyl and inorganic mercury on genome homeostasis and mitochondrial function in *Caenorhabditis elegans*. DNA Repair 52: 31-48. PMC5394729.
  71. Luz AL, **Meyer JN\***. **2016**. Effects of reduced mitochondrial DNA content on secondary mitochondrial toxicant exposure in *Caenorhabditis elegans*. Mitochondrion 30: 255-264. PMC5023498.
  70. Santa-González GA, Gómez-Molina A, Arcos-Burgos M, **Meyer JN**, Camargo M\*. **2016**. Distinctive adaptive response to repeated exposure to hydrogen peroxide associated with upregulation of DNA repair genes and cell cycle arrest. Redox Biology 9: 124-133. PMC4971155.
  69. Luz AL, Lagido C, Hirschey MD, **Meyer JN\***. **2016**. *In vivo* determination of mitochondrial function using luciferase-expressing *Caenorhabditis elegans*: contribution of oxidative phosphorylation, glycolysis, and fatty acid oxidation to

- toxicant-induced mitochondrial dysfunction. Current Protocols in Toxicology 69: 25.8.1-25.8.22. PMC5002950.
68. Luz AL, Godebo TR, Bhatt DP, Ilkayeva OR, Maurer LL, Hirschey MD, **Meyer JN\***. **2016**. Arsenite uncouples mitochondrial respiration and induces a Warburg-like effect in *Caenorhabditis elegans*. Toxicological Sciences 152: 349–362. PMC4960910.  
**Cover feature.**
  67. Wyatt LH, Diringier SE, Rogers LA<sup>†</sup>, Hsu-Kim H, Pan WKY, **Meyer JN\***. **2016**. Antagonistic growth effects of mercury and selenium in *Caenorhabditis elegans* are chemical species-dependent and do not depend on internal Hg/Se ratios. Environmental Science and Technology 50: 3256-64. PMC4964607.
  66. Maurer LL\*, **Meyer JN**. **2016**. A systematic review of evidence for silver nanoparticle-induced mitochondrial toxicity. Environmental Science: Nano 3: 311-322.
  65. Maurer LL, Yang X, Schindler AJ, Taggart RK, Jiang C, Hsu-Kim H, Sherwood DR, **Meyer JN\***. **2016**. Intracellular trafficking pathways in silver nanoparticle uptake and toxicity in *Caenorhabditis elegans*. Nanotoxicology 10: 831–835. PMC4864179.
  64. Van Houten B\*, Hunter SE, **Meyer JN**. **2016**. Mitochondrial DNA damage induced autophagy, cell death, and disease. Frontiers in Bioscience 21: 42-54. PMC4750375.
  63. González-Hunt CP, Rooney JP, Joglekar R, Anbalagan C, Ryde IT, **Meyer JN\***. **2016**. PCR-based analysis of mitochondrial DNA copy number, mitochondrial DNA damage, and nuclear DNA damage. Current Protocols in Toxicology 67: 20.11.1-20.11.25. PMC4928199.
  62. Maurer LL, Ryde IT, Yang X, **Meyer JN\***. **2015**. *Caenorhabditis elegans* as a model for toxic effects of nanoparticles: lethality, growth, and reproduction. Current Protocols in Toxicology 66: 20.10.1-20.10.25.
  61. Luz AL, Smith LL, Rooney JP, **Meyer JN\***. **2015**. Seahorse Xf(e) 24 Extracellular Flux Analyzer-based analysis of cellular respiration in *Caenorhabditis elegans*. Current Protocols in Toxicology 66: 25.7.1-25.7.15. PMC4632645.
  60. Gorka DE, Osterberg JS, Gwin C, Colman BP, **Meyer J**, Bernhardt ES, Gunsch CK, Di Giulio RT, Liu J\*. **2015**. Reducing environmental toxicity of silver nanoparticles through shape control. Environmental Science and Technology 49: 10093–10098.
  59. Robey RB\*, Weisz J, Kuemmerle N, Salzberg AC, Berg A, Brown DG, Kubik L, Palorini R, Al-Mulla F, Al-Temaimi R, Colacci A, Mondello C, Raju J, Woodrick J, Scovassi AI, Singh N, Vaccari M, Roy R, Forte S, Memeo L, Salem HK, Amedei A, Hamid RA, Williams GP, Lowe L, **Meyer J**, Martin FL, Bisson WH, Chiaradonna F, Ryan EP. **2015**. Metabolic reprogramming and dysregulated metabolism: Cause, consequence, and/or enabler of environmental carcinogenesis? Carcinogenesis 36 (S1): S203-S231. PMC4565609.
  58. Luz AL, Rooney JP, Kubik LL, González-Hunt CP, Song DH, **Meyer JN\***. **2015**. Mitochondrial morphology and fundamental parameters of the mitochondrial respiratory chain are altered in *Caenorhabditis elegans* deficient in mitochondrial dynamics and homeostasis processes. PLoS ONE 10(6): e0130940. PMC4480853.
  57. Bone AJ, Matson CW, Colman BP, Yang X, **Meyer JN**, Di Giulio RT\*. **2015**. Silver nanoparticle toxicity to Atlantic killifish (*Fundulus heteroclitus*) and *Caenorhabditis elegans*: A comparison of mesocosm, microcosm and conventional laboratory studies. Environmental Toxicology and Chemistry 34: 275-282.
  56. Jayasundara N, Van Tiem L, **Meyer JN**, Erwin K, Di Giulio RT\*. **2015**. AHR2-mediated transcriptomic responses underlying the synergistic cardiac developmental toxicity of PAHs. Toxicological Sciences 143: 469-481. PMC4306723.
  55. Rooney JP, Ryde IT, Sanders LH, Howlett EH, Colton MD<sup>†</sup>, Germ KE, Mayer GD, Greenamyre JT, **Meyer JN\***. **2015**. PCR based determination of mitochondrial DNA

- copy number in multiple species. Methods in Molecular Biology: Mitochondrial Regulation: Methods and Protocols 1241: 23-38. PMC4312664.
54. González-Hunt CP, Leung MCK, Bodhicharla RK, McKeever MG<sup>†</sup>, Arrant AE, Margillo KM<sup>†</sup>, Ryde IT, Cyr DD, Kosmaczewski SG, Hammarlund M, **Meyer JN\***. **2014.** Exposure to mitochondrial genotoxins and dopaminergic neurodegeneration in adult *Caenorhabditis elegans*. PLoS ONE 9(12):e114459. PMC4259338.
  53. Shaughnessy DT, McAllister KA, Worth L Jr, Haugen AC, **Meyer JN**, Domann FE, Van Houten B, Mostoslavsky R, Bultman SJ, Baccarelli AA, Begley T, Sobol RW, Hirschey MD, Ideker T, Santos JH, Copeland WC, Tice RR, Balshaw DM, Tyson FL. **2014.** Mitochondria, energetics, epigenetics, and cellular responses to stress. Environmental Health Perspectives 122: 1271-1278. PMC4256704.
  52. Sendoel A, Maida S, Zheng X, Teo Y, Stergiou L, Rossi C-A, Subasic D, Pinto S, Kinchen JM, Shi M, Boettcher S, **Meyer JN**, Manz MG, Bano D, Hengartner MO\*. **2014.** DEPDC1/LET-99 participates in an evolutionarily conserved pathway for anti-tubulin drug-induced apoptosis. Nature Cell Biology 16: 812-820.
  51. Rooney JP, Luz AL, González-Hunt CP, Bodhicharla R, Ryde IT, Anbalagan C, **Meyer JN\***. **2014.** Effects of 5-fluoro-2'-deoxyuridine on mitochondrial biology in *Caenorhabditis elegans*. Experimental Gerontology 56: 69-76. PMC4048797.
  50. Levard C, Yang X, **Meyer JN**, Lowry GV\*. **2014.** Response to Comment on "Sulfidation of Silver Nanoparticles: Natural Antidote to Their Toxicity." Environmental Science and Technology 48: 6051-6052.
  49. Choi J\*, Tsyusko OV\*, Unrine JM, Chatterjee N, Ahn J-M, Yang X, Thornton BL<sup>†</sup>, Ryde IT, Starnes D, **Meyer JN\***. **2014.** A micro-sized model for the *in vivo* studies of nanoparticle toxicity: What has *Caenorhabditis elegans* taught us? Environmental Chemistry 11: 227-246.
  48. Colton MD<sup>†</sup>, Kwok KWH, Brandon JA<sup>†</sup>, Warren IH<sup>†</sup>, Ryde IT, Cooper EM, Hinton DE, Rittschof D, **Meyer JN\***. **2014.** Developmental toxicity and DNA damage from exposure to parking lot runoff water in the Japanese medaka (*Oryzias latipes*). Marine Environmental Research 99: 117-124. PMC4309550.
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  45. Yang X, Jiang C, Hsu-Kim H, Badireddy AR, Dykstra M, Wiesner MR, Hinton DE, **Meyer JN\***. **2014.** Silver nanoparticle behavior, uptake, and toxicity in *Caenorhabditis elegans*: Effects of natural organic matter. Environmental Science and Technology 48: 3486-3495.
  44. Rand AA, Rooney JP, Butt CM, **Meyer JN**, Mabury SA\*. **2014.** Cellular toxicity associated with exposure to perfluorinated carboxylates (PFCAs) and their metabolic precursors. Chemical Research in Toxicology 27: 42-50.
  43. Furda A, Santos JH, **Meyer JN**, Van Houten B\*. **2014.** Quantitative PCR-based measurement of nuclear and mitochondrial DNA damage and repair in mammalian cells. Methods in Molecular Biology: Molecular Toxicology Protocols 1105: 419-437. PMC4407362.
  42. Levard C, Hotze EM, Colman BP, Dale AL, Truong L, Yang X, Bone AJ, Brown GE Jr, Tanguay RL, Di Giulio RT, Bernhardt ES, **Meyer JN**, Wiesner MR, Lowry GV\*. **2013.** Sulfidation of silver nanoparticles: Natural antidote to their toxicity. Environmental Science and Technology 47: 13440-13448. PMC4019074.



41. Turner EA, Arnold MH, Kroeger GL, Thornton BL<sup>†</sup>, **Meyer JN\***. 2013. The toxicity of mountaintop mining/valley fill-associated effluent results both from metal exposure and osmotic stress in *Caenorhabditis elegans*. PLoS ONE 8(9): e75329. PMC3774817.
40. Arnold MC, Badireddy AR, Wiesner MR, Di Giulio RT, **Meyer JN\***. 2013. Cerium oxide nanoparticles are more toxic than equimolar bulk cerium oxide in *Caenorhabditis elegans*. Archives of Environmental Contamination and Toxicology 65: 224-233.
39. **Meyer JN\***, Leung MCK, Rooney JP, Sandoel A, Hengartner MO, Kisby GE, Bess AS. 2013. Mitochondria as a target of environmental toxicants. Toxicological Sciences 134: 1-17. PMC3693132. **Cover feature.**
38. Leung MCK, Rooney JP, Ryde IT, Bernal AJ, Bess AS, Crocker TL, Ji AQ, **Meyer JN\***. 2013. Effects of early life exposure to ultraviolet C radiation on mitochondrial DNA content, transcription, ATP production, and oxygen consumption in developing *Caenorhabditis elegans*. BMC Pharmacology and Toxicology 14:9. PMC3621653.
37. Bess AS, Leung MCK, Ryde IT, Rooney JP, Hinton DE, **Meyer JN\***. 2013. Effects of mutations in mitochondrial dynamics-related genes on the mitochondrial response to ultraviolet C radiation in developing *Caenorhabditis elegans*. Worm 2(1): 1-7. PMC3670464.
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35. Hunter SE, Gustafson MA, Margillo KM<sup>†</sup>, Lee SA<sup>†</sup>, **Meyer JN\***. 2012. *In vivo* repair of alkylating and oxidative DNA damage in the mitochondrial and nuclear genomes of wild-type and glycosylase-deficient *Caenorhabditis elegans*. DNA Repair 11: 857-863. PMC3484215.
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33. Kasiviswanathan R, Gustafson MA, Copeland WC, **Meyer JN\***. 2012. Human mitochondrial DNA polymerase  $\gamma$  exhibits potential for bypass and mutagenesis at UV-induced cyclobutane thymine dimers. The Journal of Biological Chemistry 287: 9222-9229. PMC3308766.
32. Bess AS, Crocker TL, Ryde IT, **Meyer JN\***. 2012. Mitochondrial dynamics and autophagy aid in removal of persistent mitochondrial DNA damage in *Caenorhabditis elegans*. Nucleic Acids Research 40: 7916-7931. PMC3439916.
31. Furda AM, Bess AS, **Meyer JN**, Van Houten B\*. 2012. Analysis of DNA damage and repair in nuclear and mitochondrial DNA of animal cells using quantitative PCR. *In Methods in Molecular Biology: DNA repair protocols* (Lotte Bjergbæk, editor). Volume 920: 111-132. Springer Science+Business Media New York, USA. PMC4422392.
30. Yang X, Gondikas A, Marinakos SM, Auffan M, Liu J, Hsu-Kim H, **Meyer JN\***. 2012. The mechanism of silver nanoparticle toxicity is dependent on dissolved silver and surface coating in *Caenorhabditis elegans*. Environmental Science and Technology 46: 1119-1127.
29. Leung MCK, Goldstone JV, Boyd WA, Freedman JH, **Meyer JN\***. 2010. *Caenorhabditis elegans* generates biologically relevant levels of genotoxic metabolites from aflatoxin B<sub>1</sub> but not benzo[a]pyrene *in vivo*. Toxicological Sciences 118: 444-453. PMC2984530.

28. **Meyer JN\***, Lord CA, Yang X, Turner EA, Badireddy AR, Marinakos S, Chilkoti A, Wiesner MR, Auffan M. **2010**. Intracellular uptake and associated toxicity of silver nanoparticles in *Caenorhabditis elegans*. *Aquatic Toxicology* 100:140-150.
27. Boamah E, Brekman A, Tomasz M, Myeku N, Figueiredo-Pereira M, Hunter S, **Meyer JN**, Bargonetti J\*. **2010**. DNA adducts of decarbamoyl mitomycin C efficiently kill cells with compromised p53 through proteasome-mediated degradation of Chk1. *Chemical Research in Toxicology* 23: 1151–1162. PMC2907727.
26. Kullman SW\*, Mattingly CJ, **Meyer JN**, Whitehead A. **2010**. Perspectives on informatics in toxicology. In *A Textbook of Modern Toxicology*, 4th edition (Ernest Hodgson, editor). John Wiley and Sons, Hoboken NJ. Pp 593-605.
25. Alexeyenko A, Wassenberg DM, Lobenhofer EK, Yen J, Sonnhammer ELL, Linney E, **Meyer JN\***. **2010**. Interactome-based analysis of the transcriptomic response to dioxin in developing zebrafish *Danio rerio*. *PLoS ONE* 5: e10465. PMC2864754.
24. Hunter SE, Jung D, Di Giulio RT, **Meyer JN\***. **2010**. The QPCR assay for analysis of mitochondrial DNA damage, repair, and relative copy number. *Methods* 51:444-451. PMC2912960.
23. **Meyer JN\***. **2010**. QPCR: A tool for analysis of mitochondrial and nuclear DNA damage in ecotoxicology. *Ecotoxicology* 19: 804-811. PMC2844971
22. Haugen AC, Di Prospero NA, Parker JS, Fannin RD, Chou J, **Meyer JN**, Halweg C, Collins JB, Durr A, Fischbeck K, Van Houten B\*. **2010**. Altered gene expression and DNA damage in peripheral blood cells from Friedreich's ataxia patients: cellular model of pathology. *PLoS Genetics* 6: e1000812. PMC2799513.
21. Boyd WA, Crocker TL, Rodriguez AM, Lehmann DW, Leung MC-K, Freedman JH, Van Houten B, and **Meyer JN\***. **2010**. Nucleotide excision repair is not detectably inducible, but is required for normal lifespan and growth, in genotoxin-stressed adult *Caenorhabditis elegans*. *Mutation Research/Fundamental and Molecular Mechanisms of Mutagenesis* 683: 57-67. PMC2799044.
20. Eischeid AC, **Meyer JN**, Linden KG\*. **2009**. UV disinfection of adenoviruses: molecular indications of DNA damage efficiency. *Applied and Environmental Microbiology* 75: 23-28. PMC2612207.
19. Jung D, Cho Y, **Meyer JN**, Di Giulio RT\*. **2009**. Adaptation of long-range, quantitative polymerase chain reaction as a sensitive assay of DNA damage in the environmental model, Atlantic killifish (*Fundulus heteroclitus*). *Comparative Biochemistry and Physiology C Toxicology & Pharmacology* 149:182-186. PMC2676791.
18. Leung MCK\*, Williams PL, Benedetto A, Au C, Helmcke KJ, Aschner M, **Meyer JN**. **2008**. *Caenorhabditis elegans*: an emerging model in biomedical and environmental toxicology. *Toxicological Sciences* 106: 5-28. PMC2563142.
17. Billiard SM, **Meyer JN**, Wassenberg DM, Hodson PV, and Di Giulio RT\*. **2008**. Non additive effects of PAHs on vertebrate development: mechanisms and implications for risk assessment. *Toxicological Sciences* 105: 5-23. PMC2734299.
16. Di Giulio RT\*, and **Meyer JN**. **2008**. Reactive oxygen species and oxidative stress. In *The Toxicology of Fishes* (Di Giulio RT and Hinton DE, editors), Taylor and Francis, Washington, DC. Pp 273-324.
15. Burnett KG\*, Bain LJ, Baldwin WS, Callard GV, Cohen S, Di Giulio RT, Evans DH, Gómez-Chiarri M, Hahn ME, Hoover CA, Karchner SI, Katoh F, MacLatchy DL, Marshall WS, **Meyer JN**, Nacci DE, Oleksiak MF, Rees BB, Singer TP, Stegeman JJ, Towle DW, Van Veld PA, Vogelbein WK, Whitehead A, Winn RN, Crawford DL. **2007**. *Fundulus* as the Premier Teleost Model in Environmental Biology: Opportunities for New Insights Using Genomics. *Comparative Biochemistry and Physiology, Part D Genomics and Proteomics* 2: 257–286. PMC2128618.

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13. Wielgus A, Chignell CF, Miller DS, Van Houten B, **Meyer J**, Hu D-N, and Roberts JE\*. **2007**. Phototoxicity in human retinal epithelial cells promoted by hypericin, a component of St. John's Wort. Photochemistry and Photobiology 83: 706-713. PMC2092452.
12. Chan SL, Santos JH, **Meyer JN**, Mandavilli BS, Cook DL Jr, McCash CL, Kissling G, Van Houten B, Copeland WC, Walker VE, Witt KL, and Bishop JB\*. **2007**. Mitochondrial toxicity in cardiomyocytes of CD-1 mice following perinatal exposure to AZT, 3TC, or AZT/3TC in combination. Environmental and Molecular Mutagenesis 48: 190-200.
11. Santos JH\*, **Meyer JN**, and Van Houten B. **2006**. Mitochondrial localization of telomerase as a determinant for hydrogen peroxide-induced mitochondrial DNA damage and apoptosis. Human Molecular Genetics 15: 1757-1768.
10. Santos JH, **Meyer JN**, Mandavilli BS, and Van Houten B\*. **2006**. Quantitative PCR-based measurement of nuclear and mitochondrial DNA damage and repair in mammalian cells. In Methods in Molecular Biology: DNA repair protocols: Mammalian Systems, 2<sup>nd</sup> edition (Daryl Henderson, editor). Volume 314: 183-199. Humana Press Inc., Totawa, NJ, USA.
9. Timme-Laragy AR\*, **Meyer JN**, Waterland RA, and Di Giulio RT. **2005**. Analysis of CpG methylation in the promoter region of the CYP1A gene in *Fundulus heteroclitus* from creosote-contaminated and reference sites. Comparative Biochemistry and Physiology C Toxicology & Pharmacology 141: 406-411.
8. **Meyer JN**, Volz DC, Freedman JF, and Di Giulio RT\*. **2005**. Differential display of hepatic mRNA from *Fundulus heteroclitus* inhabiting a Superfund estuary. Aquatic Toxicology 73: 327-341.
7. Santos JH, **Meyer JN**, Skorvaga M, Annab LA, and Van Houten B\*. **2004**. Mitochondrial hTERT exacerbates free radical-mediated mtDNA damage. Aging Cell 3: 399-411.
6. **Meyer JN**, Smith JD, Winston GW, and Di Giulio RT\*. **2003**. Antioxidant defenses in killifish (*Fundulus heteroclitus*) exposed to Superfund sediments and model prooxidants: short-term and heritable responses. Aquatic Toxicology 65: 377-395.
5. **Meyer JN**, Wassenberg DM, Karchner SI, Hahn ME, and Di Giulio RT\*. **2003**. Expression and inducibility of aryl hydrocarbon receptor pathway genes in wildcaught killifish (*Fundulus heteroclitus*) with different contaminant-exposure histories. Environmental Toxicology and Chemistry 22: 2337-2343.
4. **Meyer JN\***, and Di Giulio RT. **2003**. Heritable adaptation and associated fitness costs in killifish (*Fundulus heteroclitus*) inhabiting a contaminated estuary. Ecological Applications 13: 490-503.
3. **Meyer JN\***, Nacci DE, and Di Giulio RT. **2002**. Cytochrome P4501A (CYP1A) in killifish (*Fundulus heteroclitus*): heritability of altered expression and relationship to survival in contaminated sediments. Toxicological Sciences 68: 69-81.
2. **Meyer J\***, and Di Giulio R. **2002**. Patterns of heritability of decreased EROD activity and resistance to PCB 126-induced teratogenesis in laboratory-raised offspring of killifish (*Fundulus heteroclitus*) from a creosote-contaminated site in the Elizabeth River, VA, USA. Marine Environmental Research 54: 621-628.
1. Keller JM, **Meyer JN**, Mattie M, Augspurger T, Rau M, Dong J, and Levin E\*. **1999/2000**. Assessment of immunotoxicology in wild populations: Review and recommendations. Reviews in Toxicology 3: 167-212.

**Non-peer reviewed publications**

8. **Meyer JN\***, Simon AH<sup>†</sup>, Umakanth K, Yang X. **2017**. Silver nanoparticles are in general more toxic to *C. elegans* than gold, copper, iron, titanium dioxide, zinc oxide, cerium oxide, and carbon-based nanoparticles. Worm Breeder's Gazette published online January 17.
7. Maurer LL, Jiang C, Hsu-Kim H, **Meyer JN\***. **2017**. Analysis of mitochondrial sodium, magnesium, calcium, manganese, and iron in wild-type *C. elegans*. Worm Breeder's Gazette published online January 17.
6. Klionsky DJ\* *et al.* **2016**. Guidelines for the use and interpretation of assays for monitoring autophagy (2<sup>nd</sup> edition). Autophagy 12: 1-222. PMC4835977.
5. **Meyer JN\***, Francisco AB. **2013**. A call for fuller reporting of toxicity test data. Integrated Environmental Assessment and Management 9(2): 347-348.
4. Leung MCK, Bunger AD, Walsky RL, **Meyer JN\***. **2013**. *In vivo* analysis of the ability of *Caenorhabditis elegans* to metabolize the human CYP3A and CYP1A2 diagnostic substrates testosterone and phenacetin. Worm Breeder's Gazette 19: 28.
3. **Meyer JN\***, Bess AS. **2012**. Involvement of autophagy and mitochondrial dynamics in determining the fate and effects of irreparable mitochondrial DNA damage. Autophagy punctum 8: 1822-1823. PMC3541291.
2. **Meyer JN**, Van Houten B. **2010**. Apparently normal DNA repair and transcript expression in the RB885 strain carrying an intronic deletion in the *xpc-1* gene. Worm Breeder's Gazette 18: 23.
1. **Meyer J**. **2000**. Adaptation to xenobiotics: multigenerational costs and benefits. SETAC Globe Newsletter 1: 41-42. Invited opinion article.

**Selected national/international scientific society meeting presentations (limited to those I presented; <sup>†</sup>undergraduate co-authors)**

- Meyer JN. 2023.** Mitochondria as a target of metals. Invited platform presentation. Society of Toxicology Annual Meeting, Nashville, TN.
- Meyer JN. 2023.** Mechanisms of Mitochondrial Toxicity. Invited platform presentation, continuing education session. Society of Toxicology Annual Meeting, Nashville, TN.
- Meyer JN. 2022.** *Caenorhabditis elegans* as a model for investigating pollutant, genetic, and environmental contributors to mitochondrial dysfunction and neurodegeneration. Invited platform presentation. Invited platform presentation. XVIth International Congress of Toxicology (ICT 2022). Maastricht, The Netherlands.
- Meyer JN**, Pan WK, Ryde IT, Klein-Adams JC, Ndirangu DS, Alexander T, Falvo MJ. **2020.** Mitochondrial DNA copy number, damage, and mitochondrial respiration in Gulf War Illness. DoD/VA Gulf War Illness State of the Science Conference. Oral. Virtual.
- Meyer JN. 2019.** What have we learned about (mostly silver) nanomaterial toxicity in the *Caenorhabditis elegans* model? Invited platform presentation. Center for the Environmental Implications of NanoTechnology Annual Meeting. Durham, NC.
- Hartman JHH, **Meyer JN. 2019.** Swim exercise in *Caenorhabditis elegans* protects dopaminergic neurons from age- and rotenone-induced toxicity. Poster presentation. United Mitochondrial Disease Foundation Symposium. Alexandria, VA.
- Meyer JN. 2019.** Does exposure to mitochondrial toxicants during germ cell development result in lifelong alterations in mitochondrial function mediated by epigenetic changes? Platform presentation. Society of Toxicology. Baltimore, MD.

- Meyer JN. 2018.** Long-term effects of early-life mitochondrial toxicity in the context of genetic deficiencies. Platform presentation. Society of Environmental Toxicology and Chemistry. Sacramento, CA.
- Meyer JN. 2017.** Roles of mitochondrial fusion, fission, and autophagy in response to environmental mitotoxicants. Poster presentation. Society of Environmental Toxicology and Chemistry. Minneapolis, MN.
- Meyer JN. 2017.** Roles of mitochondrial fusion, fission, and autophagy in response to environmental mitotoxicants. Poster presentation. United Mitochondrial Disease Foundation. Alexandria, VA.
- Meyer JN. 2016.** Long-term effects of early-life mitochondrial toxicity in the context of genetic deficiencies. Invited platform presentation. Society of Toxicology Annual Meeting, New Orleans, LA.
- Meyer JN. 2014.** Mechanisms of uptake and toxicity of silver nanoparticles in *Caenorhabditis elegans*. Platform presentation. North American Society of Environmental Toxicology and Chemistry Annual Meeting, Vancouver, BC, Canada.
- Meyer JN, Luz AL, Bess AS, Leung MCK, Bodhicharla R, González CP, Ryde IT, Ji AQ, Rooney JP. 2013.** Delayed effects of early-life exposure to irreparable mtDNA damage in *Caenorhabditis elegans*. Poster presentation. Environmental Mutagenesis and Genomics Society, Monterey, CA.
- Meyer JN. 2013.** Fate and consequences of persistent mitochondrial DNA damage. Platform and poster presentations. Gordon Research Conference: Cellular & Molecular Mechanisms of Toxicity, Andover, NH.
- Meyer JN, Leung MCK, Rooney JP, Ji AQ, Ryde IT, Bess AS. 2012.** Mitochondrial DNA as a target of environmental toxicants. Poster presentation. North American Society of Environmental Toxicology and Chemistry Annual Meeting, Long Beach, CA.
- Meyer JN. 2012.** Silver nanoparticle toxicity in *Caenorhabditis elegans*. Poster presentation. European Society of Environmental Toxicology and Chemistry Annual Meeting, Berlin, Germany.
- Meyer JN. 2012.** Later-life effects of early-life mitochondrial DNA damage. Poster presentation. European Society of Environmental Toxicology and Chemistry Annual Meeting, Berlin, Germany.
- Kasisviswanathan R, Gustafson MA, Copeland WC, **Meyer JN. 2011.** Human mitochondrial DNA polymerase  $\gamma$  exhibits potential for bypass and mutagenesis at UV-induced cyclobutane thymine dimers. Poster presentation, Environmental Mutagen Society Annual Meeting, Montreal, Quebec, October 15-19.
- Meyer JN. 2011.** Mitochondrial dynamics as a new pathway for the removal of damaged DNA. Platform presentation. Mitochondrial Medicine 2011 Symposium, Schaumburg, IL.
- Meyer JN. 2011.** The roles of mitochondrial fusion, fission, and autophagy in removing damaged mitochondrial DNA. Platform presentation. Society of Toxicology Annual Meeting, Washington, DC.
- Meyer JN, Bess AS, Leung MCK, Smith AM, McKeever MG<sup>†</sup>, Margillo KM<sup>†</sup>, Crocker TL. 2010.** Sources, fate and consequences of persistent mitochondrial DNA damage. Platform presentation (session chair). North American Society of Environmental Toxicology and Chemistry Annual Meeting, Portland, OR.
- Meyer JN, Jung D, Di Giulio RT. 2010.** Quantifying Mitochondrial and Nuclear DNA Damage in Sentinel Species. Invited Platform Presentation. Environmental Mutagen Society Annual Meeting, Fort Worth, TX.
- Meyer JN. 2010.** Desarrollo y uso del ensayo QPCR para daño al ADN nuclear y mitocondrial (2-day short course). XI Congreso Colombiano de Genética Humana, Medellín, Colombia.

- Meyer JN. 2010.** Destino y efectos del daño persistente al ADN mitocondrial. Invited plenary presentation. XI Congreso Colombiano de Genética Humana, Medellín Colombia.
- Meyer JN, Auffan M, Wiener MR, Lord CA. 2009** Silver nanoparticles inhibit growth in *Caenorhabditis elegans*. Platform presentation, ICEIN 2009 International Conference on the Environmental Implications of NanoTechnology, Howard University, Washington, DC.
- Meyer JN. 2009.** Interactomes and their applications in toxicology. Platform presentation (session chair). Society of Toxicology Annual Meeting, Baltimore, Maryland.
- Meyer JN, Arrant AE, Bernal AJ, Leung MCK, Crocker TL. 2008.** Bulky mitochondrial DNA adducts cause developmental arrest and are handled via a process involving mitochondrial fusion and autophagy in the model organism *Caenorhabditis elegans*. Platform presentation. North American Society of Environmental Toxicology and Chemistry Annual Meeting, Tampa, FL.
- Meyer JN, Arrant AE, Bernal AJ, Leung MCK, Crocker TL. 2008.** The Use of *C. elegans* to study mitochondrial DNA damage, fusion/fission events and autophagy. Invited platform presentation. Environmental Mutagen Society Annual Meeting, Puerto Rico. Boyd WA, Crocker TL, Rodriguez AM, Leung MCK, Lehmann DW, Freedman JH, Van Houten B, **Meyer JN. 2008.** Growth arrest, DNA repair, and transcriptomic response to DNA damage in *Caenorhabditis elegans*. Poster presentation. Society of Toxicology Annual Meeting, Seattle, WA.
- Meyer JN, Wassenberg DM, Lobenhofer EK, Sonnhammer ELL, Linney E, Alexeyenko A. 2008.** Interactome-based analysis of the transcriptomic response to dioxin in developing zebrafish. Poster presentation, Aquatic Animal Models of Human Disease Conference, Durham, NC.
- Meyer JN, Boyd WA, Lehmann DW, Haugen AC, Freedman JH, and Van Houten, B. 2007.** Nucleotide excision repair is required for normal lifespan and growth in genotoxin-stressed adult *Caenorhabditis elegans*. Poster presentation, 16<sup>th</sup> International *C. elegans* meeting, Los Angeles, CA.
- Meyer JN, Boyd WA, Azzam GA<sup>†</sup>, Haugen AC, Freedman JH, and Van Houten B. 2006.** Genotoxicity and age-related differences in nucleotide excision repair following UVC exposure in *Caenorhabditis elegans*. Platform presentation. Environmental Mutagen Society Annual Meeting, Vancouver, BC.
- Meyer JN, Boyd WA, Azzam GA<sup>†</sup>, Haugen AC, Freedman JH, and Van Houten B. 2006.** Altered homeostatic networks and decreased nucleotide excision repair in aging *Caenorhabditis elegans*. Poster presentation. 2<sup>nd</sup> Interactome Networks meeting (Cold Spring Harbor Laboratory/Wellcome Trust), Hinxton, UK.
- Meyer JN, Boyd WA, Freedman JH, and Van Houten B. 2005.** DNA damage formation and removal in aging, repair-deficient, or frataxin-deficient *Caenorhabditis elegans*. Poster presentation. 15<sup>th</sup> International *C. elegans* meeting, Los Angeles, CA.
- Meyer JN, Boyd WA, Haugen AC, Freedman JH, Van Houten B. 2004.** A *Caenorhabditis elegans* model of Friedreich's ataxia shows iron sensitivity, mitochondrial DNA damage, and altered gene expression. Poster presentation. Environmental Mutagen Society Annual Meeting, Pittsburgh, PA.
- Meyer JN, Volz DC, Freedman JH, and Di Giulio RT. 2003.** Differential display of hepatic mRNA from *Fundulus heteroclitus* inhabiting a Superfund estuary. Poster presentation. North American Society of Environmental Toxicology and Chemistry Annual Meeting, Austin, TX.
- Meyer JN, Timme AR, Waterland RA, Powell WH, Karchner SI, Hahn ME, and Di Giulio RT. 2003.** Analysis of CpG methylation in the promoter region of the CYP1A gene in *Fundulus heteroclitus* from creosote-contaminated and reference sites. Platform

presentation. Pollutant Responses in Marine Organisms 12<sup>th</sup> International Symposium. Safety Harbor, FL, USA.

**Meyer JN**, Smith JD, Winston GW, and Di Giulio RT. **2002**. Antioxidant defenses in killifish (*Fundulus heteroclitus*) exposed to Superfund sediments: short-term and evolutionary responses. Poster presentation. North American Society of Environmental Toxicology and Chemistry Annual Meeting, Salt Lake City, UT.

**Meyer JN** and Di Giulio RT. **2002**. Nongenetic heritability of an altered cytochrome P451A phenotype in killifish (*Fundulus heteroclitus*) from a contaminated site. Poster presentation. Developmental Toxicology in the 21<sup>st</sup> Century: Multidisciplinary Approaches using Model Organisms and Genomics. NIEHS, Research Triangle Park, NC.

**Meyer JN** and Di Giulio RT. **2001**. Mechanisms of adaptation in F<sub>1</sub> and F<sub>2</sub> offspring of wild-caught killifish (*Fundulus heteroclitus*) from a contaminated site. Platform presentation. North American Society of Environmental Toxicology and Chemistry Annual Meeting, Baltimore, MD.

**Meyer JN** and Di Giulio RT. **2001**. Mechanisms of adaptation and fitness costs in F<sub>1</sub> and F<sub>2</sub> offspring of wild-caught killifish (*Fundulus heteroclitus*) from a contaminated site. Platform presentation, Pollutant Responses in Marine Organisms 11<sup>th</sup> International Symposium. Plymouth, United Kingdom.

**Meyer JN** and Di Giulio RT. **2001**. Adaptations in a population of killifish inhabiting a polluted estuary: mechanisms, fitness costs, and genetic consequences. Platform presentation. Office of Naval Research Harbor Processes Review. Washington, DC.

**Meyer JN** and Di Giulio RT. **2000**. Mechanisms of adaptation and fitness costs in F<sub>1</sub> and F<sub>2</sub> offspring of wild-caught killifish (*Fundulus heteroclitus*) from a contaminated site. Platform presentation. North American Society of Environmental Toxicology and Chemistry Annual Meeting, Nashville, TN.

**Meyer JN**, MacLean ED, Di Giulio RT. **1999**. Measures of fitness in F<sub>1</sub> and F<sub>2</sub> offspring of wild-caught mummichog (*Fundulus heteroclitus*) from a contaminated site. Platform presentation, North American Society of Environmental Toxicology and Chemistry Annual Meeting, Philadelphia, PA.

**Meyer JN**, MacLean ED, Di Giulio RT. **1999**. Increased sensitivity to oxidative stress in a creosote-adapted population of mummichog (*Fundulus heteroclitus*). Poster presentation. Pollutant Responses in Marine Organisms 10<sup>th</sup> International Symposium. Williamsburg, VA.

### **Other presentations**

**2023:** Wayne State University; University of Chicago; Worcester Polytechnic Institute; Children's Hospital of Philadelphia; Duke Cancer Center Cancer Risk, Detection, and Interception Program; Gulf War Journal Club; North Carolina State University; Universidad del Valle de Guatemala

**2022:** Portland Chapter, ACS; NIEHS Keystone Lecture; East Carolina University; Oregon Health Sciences University; Duke University ITEHP Symposium; Oregon State University, Triangle Mitochondrial Club

**2021:** University of New Mexico; University of Connecticut; Oklahoma State University

**2020:** University of Kentucky; Triangle Area Mitochondrial Club

**2019:** UNC Greensboro; UC Riverside; UW Milwaukee; Duke-NUS Translational Parkinson's Research Symposium; University of Puerto Rico Medical Science Campus; Duke University ITEHP Symposium; Duke Hospital Cancer Center Prostate and Urologic Cancers Symposium

**2018:** Oregon State University; North Carolina Central University

- 2017:** North Carolina Society of Toxicology  
**2016:** University of Washington Department of Biochemistry; RTP180; Duke Tumor Biology Group Retreat; ONES Awardee Symposium; Genetics and Environmental Mutagenesis Society; Institut Ciència de Materials de Barcelona  
**2015:** National Toxicology Program; Rutgers University Graduate School of Biomedical Sciences; Agency for Toxic Substances and Disease Registry; Duke Cancer Institute/ITEHP Symposium; Cancer Control and Population Sciences Seminar Series (Duke Cancer Institute); NC State Department of Toxicology  
**2014:** Duke Interdisciplinary Mitochondrial Colloquium; ONES Awardee Symposium; Carolina Science Café; Duke Center for DNA and Genome Stability; National Academy of Sciences Arab American Frontiers Program; Duke Megatrends presentation  
**2013:** US EPA (RTP); Clemson University; NIEHS; Duke ITEHP Symposium; ONES Awardee Symposium  
**2012:** Belmont University Annual Environmental Science Lecture; Duke ITEHP Symposium; OneHealth course lecture; Leibniz Research Institute for Environmental Medicine; NIA Laboratory of Molecular Gerontology; ONES Awardee Symposium  
**2011:** ECU Biology; Baylor University Biology; NIEHS DERT; Duke ITEHP Seminar Series; Duke ITEHP Symposium; Duke Aging Colloquium  
**2010:** Asociación Colombiana de Genética Humana workshop and presentation  
**2009:** US EPA (RTP); Duke Center for DNA and Genome Stability  
**2008:** UNC DNA Repair Focus Group; NC State Toxicology; NIEHS Laboratory of Molecular Genetics

### **Teaching**

#### *University graduate (at Duke University)*

**Environmental Health** (ENV537): 2009, 2011-2014. Co-Instructor.

**Environmental Toxicology** (ENV501): 2005, 2007- 2022. Co-Instructor or Instructor.

**Mechanisms in Toxicology** (ENV819): 2008, 2011, 2015, 2017, 2019, 2020, 2022, 2023. Instructor.

**Seminar in Toxicology** (ENV847/848): Fall 2017-Spring 2023 (every semester). Instructor.

**Connections in Global Health** (ENV795): Fall 2017. Instructor.

#### *University undergraduate (at Duke University)*

**Introduction to Environmental Science and Policy** (ENV102): 2007-2017. Instructor.

**Environmental Chemistry and Toxicology** (ENV360): 2008 - 2022. Co-Instructor.

**Integrating Environmental Science and Policy** (ENV201): 2006, Co-Instructor; 2007-2014, 2-3 malaria module lectures.

**Connections in Global Health** (ENV395): Fall 2017. Instructor.

**Independent Studies:** 1-2/semester most semesters.

#### *Middle School and High School (at Colegio de Estudios Avanzados "José Martí," Quetzaltenango, Guatemala.)*

**English** (Middle School and High School): 1994-1997. Program Director and Instructor.

**Biology** (High School): 1996. Instructor.

### **Service activities**



*Journal peer reviewer:* ACS Chemical Neuroscience (2), Analytical Chemistry (1), Aquatic Toxicology (7), Archives of Environmental Contamination and Chemistry (1), Biochemical Pharmacology (2), Biology Methods & Protocols (1), BBA-Gene Regulatory Mechanisms (1), Biology Letters (1), BMC Biology (1), BMC Pharmacology & Toxicology (3), Cell Death and Disease (1), Cellular and Molecular Biology (1), Chemical Reviews in Toxicology (1), Chemico-Biological Interactions (2), Chemosphere (6), Comparative Biochemistry and Physiology (4), Current Research in Toxicology (1), Developmental Biology (1), Diabetes/Metabolism Research and Reviews (1), DNA Repair (7), Ecotoxicology (3), Ecotoxicology and Environmental Safety (4), Ecotoxicology and Molecular Mutagenesis (3), EMBO Journal (2), Environmental Health Perspectives (1), Environment International (3), Environmental and Molecular Mutagenesis (17), Environmental Pollution (3), Environmental Science and Technology (14), Environmental Toxicology (3), Environmental Toxicology and Chemistry (7), Environmental Toxicology and Pharmacology (2), Epigenetics (1), Experimental Gerontology (2), Food and Chemical Toxicology (1), Free Radicals in Biology and Medicine (1), Genome Research (1), Genomics (1), Journal of Agricultural and Food Chemistry (1), Journal of Applied Microbiology (1), The Journal of Biological Chemistry (1), Journal of Clinical Investigation (1), Journal of Experimental Biology (1), Journal of Gerontology (2), Journal of Visualized Experiments (1), Marine Environmental Research (2), Mechanisms of Ageing and Development (1), Methods (1), Mitochondrion (12), Molecular Carcinogenesis (1), Mutation Research (1), Nanomedicine (1), Nanotoxicology (10), Nature Nanotechnology (1), Neurotoxicology (4), Neurotoxicology and Teratology (7), Nucleic Acids Research (2), PLoS Genetics (1), PLoS ONE (15), PNAS (1), Radiation Oncology (1), Redox Biology (1), Science of the Total Environment (1), Scientific Reports (2), Toxicological Sciences (23), Toxicology (10), Toxicology Letters (1), microPublication Biology (3).

*Editorial Board,* BMC Pharmacology and Toxicology (2012-2017), DNA Repair (2013-2021), Environmental and Molecular Mutagenesis (2013-present), Korean Journal of Environmental Health and Toxicology (2011-2017), Mitochondrion (2020-present).

*Scientific Society Service:* Councilor to the Board of Directors, Genetics and Environmental Mutagenesis Society 2007-2010; Councilor, Molecular and Systems Biology Specialty Section, Society of Toxicology (2013-2015); Awards and Honors Committee (2012-2014), Publications Committee (2014-present), Education, Student and New Investigator Affairs Committee (2019-2021), Environmental and Molecular Mutagenesis Society; Society journal (Environmental and Molecular Mutagenesis board (2017-present), and Councilor (2017-2021), Environmental Mutagenesis and Genomics Society; Publications Committee, Society of Toxicology (2022-present).

*Grant reviews:* Banco de la República (Colombia, 1), Biotechnology and Biological Sciences Research Council (UK, 2), Environment and Health Fund (Israel, 1), Medical Research Council National Centre for the Replacement, Refinement and Reduction of Animals in Research (UK, 1), Maine Water Resources Institute (1), NIEHS SBIR (2), NIEHS/Superfund (1, with Co-Chair duties), NIEHS Special Emphasis/Specialty (11), NSF (1), Netherlands Organization for Scientific Research (1), NOMD (1), NAL (1), SIEE study section standing member (2-3 meetings/year) 2019-2023.

*Director of Graduate Studies,* ENV (PhD) program, 2013-2018; Integrated Toxicology and Environmental Health Program, 2018-2023.

**Research Mentoring** \*indicates joint advising

*Undergraduate students:* Alexa Allen (NCCU, 2022); Greg Azzam (NCSU, 2007); Sasha Bacot (Biology and Computer Science, 2025); Kiersten Bell (NSOE, 2018); Avery Berkowitz (NSOE, 2010); Shefali Bijwadia (Biology, 2020); Ashley Blawas (Biomedical Engineering, 2018); Nicole Bolton (NSOE, 2024); Jean Chung (Biology/NSOE, 2026); Meryl Colton (NSOE, 2011); Audrey Dinyari (UNC, 2017); Lauren Donoghue (UNC, 2014); Rachita Gowdu (NSOE, 2022); Laura Guidera (Biology, 2018); Audrey Hagopian (NSOE, 2014); Samantha Hall (Biology/NSOE, 2015); Victoria Harms (Baylor University, 2018); Jamie Harris (Biology, 2020); Nathan Heffernan (Public Policy, 2021); Jina Kim (NSOE, 2013); Pooja Lalwani (Biology, 2022); Josph Laster (Chemistry, 2023); Sean Lee (Biology, 2011); Kathleen Margillo (NSOE, 2011); Zachary Markovich (Chemistry, 2020); Madeline McKeever (Biology, 2009); Luiza Perez (Sociology, 2019); Caroline Reed (UNC, 2018); Riccardo Romersi (Chemistry/NSOE, 2021); Anod Saba (NCCU, 2023); Michael Saporito (Biology, 2019); Alex Simon (Virginia Tech, 2013); Tymofi Sokolskyi (Biology, 2021); Clare Sparling (Biology, 2024); Brittany Lila Thornton (NSOE, 2013); Ashlyn Wahl (Biology, 2022); Tanner Waters (NSOE, 2018).

*Master's students:* Emily Buenger (NSOE, MS, 2013); Christina Chao (DGHI, MS, 2015); Genna Gomes (NSOE, MEM, 2015); Roi Faroud Lopez (MEM, 2023); Alexander Kliminsky (NSOE, MEM, 2016); Kara Koehn (NSOE, MEM, 2009); Sharon Luong (NSOE, MEM, 2010); Samantha Murphy\* (NSOE, MS, 2023); Ryan Parks (NSOE, MEM, 2023); Emily Robie (DGHI, MS, 2019); Katherine Stencel (NSOE, MS, 2015); Krithika Umakanth (NSOE, MEM, 2011).

*Doctoral students (major advisor):* Christina Bergemann (NSOE, 2025); Amanda Bess (NSOE, 2012); Claudia González-Hunt (NSOE, 2017); Shaunacee Howell (NSOE, 2026); Rashmi Joglekar\* (NSOE, 2019); Dillon King\* (NSOE, 2023); Maxwell Leung (NSOE, 2012); Tess Leuthner (NSOE, 2022); Jessica Lewis\* (NSOE, 2015); Anthony Luz (NSOE, 2017); Katherine Morton (NSOE, 2024); John Rooney (NSOE, 2015); Latasha Smith (Pharmacology and Cancer Biology, 2020); Lauren Wyatt\* (NSOE, 2017); Xinyu Yang (NSOE, 2014).

*Doctoral students (thesis committee):* Christina Arnaout (Civil and Environmental Engineering/Pratt, 2013); Ivana Barraza (Pathology, 2027); Audrey Bone (NSOE, 2015); Autumn Bernal (University Program in Genetics and Genomics, 2012); Daniel Brown (NSOE, 2015); Xiou Cao (Molecular Genetics and Microbiology, 2017); Elizabeth Chan (Immunology, 2014); Bryan Clark (NSOE, 2011); Xiaoxing Cui (NSOE, 2018); Lauren Czaplicki (Civil and Environmental Engineering/Pratt, 2017); Drew Day (NSOE, 2017); Beverly deSouza (Pharmacology and Cancer Biology, 2025); Funmilayo Egunjobi (Biology, 2026); Anne Eischeid (Civil and Environmental Engineering/Pratt, 2009); Tara Essock-Burns (NSOE, 2015); Carrie Fleming (NSOE, 2010); Shaza Gaballah (NSOE, 2024); Yihui Ge (NSOE, 2025); Emily Green (NSOE, 2026); Marissa Guttenberg (Medicine, 2024); Dawoon Jung (NSOE, 2009); Isabel Kenny (Biology, 2023); Jordan Kozal (NSOE, 2018); Christopher Leonetti (NSOE, Duke University, 2016); Casey Lindberg (NSOE, 2019); Laura Macaulay (NSOE, 2015); Mingyuan Liu (Electrical and Computer Engineering, 2027); Ilaria Merutka (NSOE, 2025); Priyaanka Nanduri (Pharmacology and Cancer Biology, 2015); Pam Noyes (NSOE, 2011); Ashley Parks (Civil and Environmental Engineering/Pratt, 2013); Allison Phillips (NSOE, 2019); Simon Roberts (NSOE, 2014); Matt Ruis (NSOE, 2021); Jordan Schneider (Cell and Molecular Biology, 2026); Rose Schrott (NSOE, 2021); Siddharthan Balachandar Thendral (Biology, 2026); Lindsey Van Tiem (NSOE, 2011); Samantha Wilkison (Pharmacology and Cancer Biology, 2023); Janai Williams-Doria (Systems and Integrative Neuroscience, 2023); Jerry Yen

(Microbiology and Genetics, 2012); Jinxin Zhang (Mechanical Engineering and Materials Science, 2024).

*Post-graduate researchers:* Rakesh Bodhicharla (2011-2013); Jessica Hartman (2016-2020); Kirsten Helmcke (2010); Kathleen Hershberger (2018-2020); Javier Huayta (2022-present); Senyene Eno Hunter (2009-2010); Laura (Kubik) Maurer (2014-2016); Danielle Ferraz Mello Trevisan (2017-2020); Lingfeng Meng (2020-2021); Lu Wang (2019-2020).

*Visiting scholars:* Jinhee Choi (2010-2011; University of Seoul, South Korea), Gloria Santos Gonzáles (2013; Universidad de Antioquia, Colombia), Silvia Maglioni (2015; IUF- Leibniz Research Institute for Environmental Medicine, Germany), Lam Van Giang (2011; Vietnam National University, Vietnam), Lesly Tejeda Benítez (2012 and 2016; Universidad de Cartagena, Colombia), Ricardo Laranjeiro (2017, Rutgers University).