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(she/her)

Mary L. Hixon, Ph.D.

Senior Toxicologist

Dr. Hixon is experienced in reproductive and developmental toxicology. Her primary responsibilities include environmental and chemical toxicology data analysis and specific environmental chemical exposure evaluation to assess potential human risks. Before coming to Gradient, Dr. Hixon was an assistant professor at Brown University, where she researched the reproductive health effects of endocrine-disrupting chemicals in the male and female reproductive systems. Utilizing mouse models and toxicogenomic approaches, her research involved elucidating the signaling networks activated and gene expression signatures elicited by endocrine-disrupting chemicals. She has authored original research articles, review articles, and book chapters on a wide variety of topics, including reproductive biology and toxicology.

Areas of Expertise

- Reproductive & Developmental Toxicology
- Mode-of-Action Analyses
- Human Exposure
- Endocrine-Disrupting Chemicals
- Gene-Environment Interactions
- Site-Specific Risk

Services

- Toxicology & Risk Sciences
- Occupational Health & Safety
- Product Safety Assessment
- California Proposition 65
- Product Liability
- Chemical Portfolio Hazard/Risk Analysis
- Third-Party Profiling
- Food & Beverages
- Toxicological Risk Assessment

Education

- Ph.D., Toxicology,
  University of North Carolina at Chapel Hill
- M.S., Environmental Health,
  Case Western Reserve University
- B.A., Biology, Hiram College

Selected Projects

Toxicology Data Analysis: Managed and provided technical expertise in the evaluation of whether exposure to cosmetic talc and/or its constituents was associated with increased risks of mesothelioma. Analyzed plaintiff medical and personal histories to assess their alleged exposures to asbestos in both occupational and nonoccupational settings.

Human Exposure Assessment: Managed and provided epidemiology and toxicology expertise on a category of chemicals used in cleaning supplies and possible health effects from exposure to these chemicals. Provided updates and a final report summarizing our findings to the company.

Human Health Risk Assessment: Performed an in-depth evaluation regarding the potential for Bisphenol A to cause cancer in humans using a systematic review framework to evaluate quality and risk of bias of the relevant epidemiology and experimental animal studies of outcomes specific to tumor incidence.

Alternatives Assessment: Provided toxicology expertise on the analysis of several alternative flame retardant chemicals to replace the currently used ozone-depleting agent, Halon. Compiled health and environmental data to characterize hazards for each of the chemical alternatives. Performed an alternatives assessment to identify preferable alternatives for use in future aircraft fire prevention systems to support the selection of an environmentally preferable alternative compound for commercial aircraft.

Site-Specific Risk Assessment: Performed a safety assessment for an aerosolized oligonucleotide tracer used to simulate human respiratory emissions in ventilation systems. Reviewed the toxicology and biosafety guidance to determine if the tracer posed a health risk to workers under the specified conditions of use.

Developmental and Reproductive Toxicology: Provided technical expertise in rapid reviews of the toxicology literature to determine whether chemicals of concern were developmental and reproductive toxicology (DART) agents. Estimated worker doses and overall hazard indices.

Selected Publications

Prueitt, RL; **Hixon, ML;** Fan, T; Olgun, NS; Piatos, P; Zhou, J; Goodman, JE. 2023. "Systematic review of the potential carcinogenicity of bisphenol A in humans." *Regul. Toxicol. Pharmacol.* 142:105414. doi: 10.1016/j.yrtph.2023.105414.

Hixon, ML. 2019. "Teratogenesis." In *Toxicology Principles for the Industrial Hygienist (Second Edition).* (Eds.: Luttrell, WE; Still, KR; Church, JA; and Beyer, LA), American Industrial Hygiene Association, Falls Church, VA, p202-210.

Beyer, LA; **Hixon, ML.** 2018. "Review of animal studies on the cardiovascular effects of caffeine." *Food Chem. Toxicol.* 118:566-571.

Goodman, JE; Peterson, MK; **Hixon, ML;** Shubin, SP. 2017. "Derivation of an oral maximum allowable dose level for bisphenol A." *Regul. Toxicol. Pharmacol.* 86:312-318. doi: 10.1016/j.yrtph.2017.03.024.