

# Mary L. Hixon, Ph.D.

## Senior Toxicologist

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Dr. Hixon is experienced in reproductive and developmental toxicology. Her primary responsibilities include environmental and chemical toxicology data analyses and the evaluation of specific environmental chemical exposures to assess potential human health 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.

### Representative Projects

**Personal Care Product Company:** 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.

**Cleaning Products Manufacturer:** 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 and conclusions to the company.

**Medical Device Toxicological Risk Assessment:** As part of a submission to FDA, managed and evaluated the toxicological hazard potential associated with leachable substances from a medical device. Compiled toxicological profiles for leachable constituents (e.g., semi-volatile, volatile, and organic compounds and metals) from the device and determined the margin of safety for each under the conditions of product use.

**Alternatives Assessments:** 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.

**Industrial Hygiene:** Managed and provided technical expertise in the evaluation of the degree of hazard to workers applying chemicals used in the coatings of optical fibers focusing, in particular, on dimethylacrylamide. Conducted a toxicity review of each constituent in the coating as listed on suppliers' safety data sheets. Evaluated whether under the conditions of use, additional safety measures were necessary to reduce exposure.

**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.

### Areas of Expertise

- Reproductive and Developmental Toxicology
- Toxic Torts
- Mode-of-action Analyses
- Human Exposure
- Endocrine Disrupting Chemicals
- Gene-Environment Interactions
- Site-specific risk

### 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 Publications and Presentations

**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.

**Hixon, ML.** 2018. "Assessing Lead Exposure Risk from Botanicals: Ayurvedics as a Case Study." Presented at the Teratology Society 58th Annual Meeting, Clearwater, FL, June 24-28.

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.



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