



Barbara.Beck@gradientcorp.com

(617) 395-5518

(she/her)

Barbara D. Beck, Ph.D., DABT, ATS, AAAS Fellow

Principal

Dr. Beck is an expert in toxicology and health risk assessment for environmental chemicals, especially metals, complex organic compounds, and air pollutants, and is the author of over 100 book chapters and journal articles on these topics. She has performed site-specific and chemical-specific risk assessments, developed exposure and risk assessment methodologies, and has presented the results to different audiences, including regulatory agencies, the US Congress, and the public. Before joining Gradient, Dr. Beck was Chief of Air Toxics Staff for US EPA Region I. Prior to that, she was a fellow in the Interdisciplinary Programs in Health at the Harvard School of Public Health. She was a visiting scientist in the Molecular and Integrative Physiological Sciences Program in the Department of Environmental Health at the Harvard T.H. Chan School of Public Health through 2018. She was a member and vice-chair of the US EPA Science Advisory Board (SAB) from 2019 to March 2021, and was reappointed as a member in August 2021. She is also a member of the US EPA Chemical Assessment Advisory Committee.

Areas of Expertise

- Inhalation Toxicology
- Metals Toxicology
- Historical Understanding of Toxicology
- Regulatory Comment
- Risk Communication

Services

- Toxicology & Risk Sciences
- Exposure & Risk Assessment
- Occupational Health & Safety
- Product Safety Assessment
- California Proposition 65
- Product Liability
- Food & Beverages

Education

- Ph.D., Molecular Biology & Microbiology, Tufts University
- A.B., Biology, Bryn Mawr College
- Diplomate, American Board of Toxicology
- Fellow, Academy of Toxicological Sciences
- EU-registered toxicologist *via* membership in the UK Register of Toxicologists
- Fellow, American Association for the Advancement of Science (AAAS)

Selected Projects

Safety Assessment for Medical Implant: Performed a toxicological evaluation of oil residuals on medical implants. Assessed the potential for long-term effects.

Pesticide Spray Drift Evaluation: Developed a sampling plan to assess air concentrations of pesticides, and performed a risk assessment for spray drift exposure to pesticides.

Historical and Current Knowledge of Asbestos: Evaluated evolution in understanding of asbestos health effects in different industries over time. Analyzed toxicological differences among forms of asbestos.

Evaluation of Toxicology and Risks of PFOA and PFOS: Provided comments to US EPA regarding its Health Effects Documents for PFOA and PFOS.

Toxicological and Risk Evaluation of Arsenic: Evaluated arsenic mode-of-action and assessed the implications for low-dose risks.

Toxicological and Risk Evaluation of Perchlorate: Conducted an in-depth evaluation of animal toxicological studies in terms of human relevance. Coordinated a human volunteer study involving low-level perchlorate exposure.

Testimony at Congressional Briefing on Lead Exposure from Recreational Vehicles: Presented an analysis of the Consumer Product Safety Improvement Act on exposures to lead and potential impacts on blood lead of lead released from valves on bicycles and motorcycles.

Selected Publications

Krishan, M; Navarro, L; **Beck, BD**; Carvajal, R; Dourson, M. 2021. "A regulatory relic: After 60 years of research on cancer risk, the Delaney Clause continues to keep us in the past." *Toxicol. Appl. Pharmacol.* 433:115779.

Cohen, JM; **Beck, BD**; Rhomberg, LR. 2021. "Historical perspective on the role of cell proliferation in carcinogenesis for DNA-reactive and non-DNA-reactive carcinogens: Arsenic as an example." *Toxicology* 456:152783

Mayfield, DB; Bailey, LA; Cohen, JM; **Beck, BD**. 2022. "Properties and effects of metals." In Press in: *Principles of Toxicology: Environmental and Industrial Applications*.

Beck, BD; Seeley, M; Calabrese, EJ. 2014. "Use of toxicology in the regulatory process." In *Hayes' Principles and Methods of Toxicology (Sixth Edition)*. CRC Press, Boca Raton, FL, p35-87.

Bailey, LA; Goodman, JE; **Beck, BD**. 2009. "Proposal for a revised Reference Concentration (RfC) for manganese based on recent epidemiological studies." *Regul. Toxicol. Pharmacol.* 55:330-339.