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A SPECIAL ISSUE ON NANOMATERIAL REGULATIONS AND HEALTH EFFECTS

**Barbara D. Beck, Christopher M. Long, Mara R. Seeley,
and Marc A. Nascarella** □ Gradient, Cambridge, MA

This issue of *Dose-Response* presents a multi-disciplinary look at the assessment and management of potential environmental, health, and safety impacts of engineered nanoparticles. It offers a series of diverse technical and policy-related manuscripts addressing the toxicological, medicinal, political, and legal aspects of nanomaterial exposure and regulation.

The technical contributions to this issue include analyses by:

- Dr. Dhimiter Bello and colleagues at the University of Massachusetts Lowell, who contributed an article discussing the use of oxidative stress as a metric for characterizing nanomaterial exposure;
- Dr. Kenton Leigh and colleagues of Arkansas State University, who discuss an aquatic toxicology study evaluating exposure to semiconductor nanocrystal quantum dots using an aquatic vertebrate (*Pimephales promelas*);
- Drs. Marc Nascarella and Edward Calabrese (of Gradient and the University of Massachusetts Amherst, respectively), who present a methodology to characterize and evaluate the biphasic dose-response of nanomaterials; and
- Dr. Jahangir Satti of Albany Medical College, who reviews the practical implications of nanodosimetry in medical applications.

This special issue also features papers detailing the risk management and policy implications of nanoparticle regulation in the United States and abroad, especially in the European Union.

- Drs. Steffen Hansen and Anders Baun, of the Technical University of Denmark, discuss relevant risk management and risk policy for nanomaterials;
- Jean Warshaw, a New York City-based attorney, examines the current regulation of nanotechnology under the Toxic Substances Control Act; and

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Nanomaterial regulations and health effects

- John Bashaw, an attorney at Brenner, Saltzman & Wallman LLP, describes the legal framework for reconciling the definition of a hazardous substance with respect to nanoparticles and the mandates of the Comprehensive Environmental Response, Compensation, and Liability Act.

As guest editors of this special issue of *Dose-Response*, it was our goal to assemble technical and policy-based papers that would encompass the interests of scientists engaged in nanoparticle research, as well as attorneys, analysts, and regulators charged with evaluating these emerging scientific findings within a regulatory or legal context. While this issue is not intended to be a comprehensive collection of nanomaterial research, it does offer the reader a single issue on nanomaterial research that is current, diverse, and freely available (<http://www.dose-response.com>). We look forward to your feedback and hope you enjoy this issue.

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and Marc A. Nascarella