

Kim R. Rogers, Research Chemist, in EPA's National Exposure Research Laboratory

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Area of Expertise: Manufactured nanomaterials are currently found in a wide range of commercial products including microelectronics, disinfectants in detergents, wood preservatives, nano pesticides, fillers for plastics and rubber, cosmetics/health, medical delivery devices, and construction materials, sensors, solar energy devices and image contrast agents. Nanomaterials pose special challenges because tools for relating the inherent chemical properties of these materials to their transport and transformation are different from or more difficult to define, than those used for traditional chemicals. The development of these tools is essential for better understanding these materials that have already been developed for use in a wide range of commercial products. This research provides data and tools for evaluating relationships between inherent chemical properties of manufactured nanomaterials and their transport, transformation and bioavailability in environmental and treatment systems.

Select Publications:

Santiago-Rodríguez L, Griggs JL, Bradham KD, Nelson C, Luxton T, Platten III WE, Rogers KR. Assessment of the bioaccessibility of micronized copper wood in synthetic stomach fluid. *Environmental Nanotechnology, Monitoring & Management* 4; 85–92 (2015).

Tulve NS, Stefaniak AB, Vance ME, Rogers KR, Mwilu S, LeBouf RF, Schwegler-Berry D, Willis R, Thomas T, Marr LC. Characterization of silver nanoparticles in selected consumer products and its relevance for predicting children's potential exposures. *International Journal of Hygiene and Environmental Health* 218; 345–357 (2015).

Mwilu, S.K., El Badawy, A.M., Bradham, K., Nelson, C., Thomas, D., Scheckel, K.G., Tolaymat, T., Mae, L., Rogers, K.R. Changes in silver nanoparticles exposed to human synthetic stomach fluid: Effects of particle size and surface chemistry. *Science of the Total Environment*, 447, 90-98 (2014).

Rogers, K.R., Bradham, K., Tolaymat, T., Thomas, D.J., Hartmann, T., Ma, L., Williams, A. Alterations in physical state of silver nanoparticles exposed to synthetic human stomach fluid. *Science of the Total Environment*, 420, 334-339 (2012).

Poynton, H.C., Lazorchak, J.M., Impellitteri, C.A., Blalock, B.J., Rogers, K., Allen, H.J., Loguinov, A., Heckman, J.L., & Govindasmaw, S. Toxicogenomic responses of nanotoxicity in *Daphnia magna* exposed to silver nitrate and coated silver nanoparticles. *Environmental Science & Tehnology* 46, 6288-6296 (2012).

Von der Kammer, F., Ferguson, P.L., Holden, P.A., Masion, A., Rogers, K.R., Klaine, S.J., Koelmans, A.A., Horne, N., & Unrine, J.M. Analysis of Nanomaterials in Complex Matrices (Environmental and Biota): General Considerations and Conceptual Case Studies. *Environmental Technology and Chemistry* 31, 32-49 (2012).

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Education:

- Ph.D., Biochemistry, Utah State University, 1987
- B.S., Chemistry, Weber State University, 1980

Professional Experience:

- Research Chemist, USEPA, ORD, NERL, EMMD, PHCB, 1991-present
- Adjunct Faculty, Dept. of Public Health, UNLV, Las Vegas, NV 2005-2006
- Adjunct Faculty, Dept. of Chemistry, UNLV, Las Vegas, NV 1995-2001
- NRC postdoctoral Associate, US Army CRDEC, Aberdeen Proving Ground, MD 1990-1991