
Helen C. Poynton, Ph.D.
Curriculum Vitae

Department of Environmental, Earth and Ocean Sciences
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EDUCATION

- Ph.D. University of California, Berkeley, CA, Molecular and Biochemical Nutrition; May 2007
- B.S. Temple University, Philadelphia, PA, Biochemistry; May 2000

POSITIONS AND APPOINTMENTS

- 2010 – pres Assistant Professor, Department of Environmental, Earth and Ocean Sciences, University of Massachusetts, Boston**
- 2009-2010 Post-doctoral Fellow in the Molecular Indicators Research Branch at the U.S. EPA
- 2007-2009 Oak Ridge Institute for Science Education Post-doctoral Fellow, Molecular Indicators Research Branch at the U.S. EPA
- 2001-2007 Graduate Student Researcher in the Laboratory of Chris Vulpe, Department of Nutritional Sciences and Toxicology, University of CA, Berkeley
- 2001-2006 Graduate Student Instructor, Departments of Integrative Biology and Nutritional Sciences, University of CA, Berkeley

OTHER EXPERIENCE AND PROFESSIONAL MEMBERSHIPS

- 2011- Associate Member, Dana-Faber/Harvard Cancer Center
- 2011- Member, Organisation for Economic Co-operation and Development (OECD) Community of Practice for Nanomaterials
- 2010 Board of Directors, Ohio Valley Chapter, Society of Environmental Toxicology and Chemistry
- 2009 Workshop Co-organizer, “Nanotechnology Primer 101.” with Barber, D., Poynton, H.C., Unrine, J.M. & Varma, R.S. Ohio Valley Society of Environmental Toxicology and Chemistry. Cincinnati, OH, September 2009. SETAC
- 2009 Guest Lecturer, “Environmental Biogeochemistry,” Bren School of Environmental Science and Management, University of CA, Santa Barbara
- 2008- Society of Environmental Toxicology and Chemistry Nanotechnology Advisory Group
- 2007-2010 Member, Ohio Valley Chapter, Society of Environmental Toxicology and Chemistry
- 2005- Member, Society of Environmental Toxicology and Chemistry
- 2005 Workshop Participant, “SETAC Pellston workshop: Molecular Biology and Risk Assessment: Evaluation of the Potential Roles of Genomics in Regulatory Ecotoxicology”
- 2002- Member, *Daphnia* Genome Consortium

HONORS AND AWARDS

- 2007 Oak Ridge Institute for Science and Education Postdoctoral Fellowship
2007 Elsevier Best Student Platform Presentation at the 2007 North American SETAC Meeting in Milwaukee, Wisconsin
2006 Society of Environmental Toxicology and Chemistry Travel Award
2004 Environmental Protection Agency (EPA) Science to Achieve Results (STAR) Fellowship Award
2003 University of California Toxic Substances Research and Teaching Program Fellowship Award

PUBLICATIONS

Poynton, H.C., Taylor, N.S., Hicks, J., Colson, K., Chan, S., Clark, C., Scanlan, L., Loguinov, A.V., Vulpe, C. and Viant, M. R. Metabolomics of Microliter Hemolymph Samples Enables an Improved Understanding of the Combined Metabolic and Transcriptional Responses of *Daphnia magna* to Cadmium. *Environ Sci Technol*. 2011 Mar 18; 45(8): 3710–3717.

Patra, M., Ma, X., Isaacson, C., Bouchard, D., **Poynton, H.**, Lazorchak, J. M., & Rogers, K. R. (2010). Changes in agglomeration of fullerenes during ingestion and excretion in *Thamnocephalus platyurus*. *Environ Toxicol Chem*. 2011 Apr; 30(4):828-35.

Poynton, H.C., Lazorchak, J., Impellitteri, C., Smith, M.E., Rogers, K., Patra, M., Hammer, K., Allen, J. & Vulpe, C. (2011). Differential Gene Expression in *Daphnia magna* Suggests Distinct Modes of Action and Bioavailability for ZnO nanoparticles and Zn ions. *Environ Sci Technol*. 2011 Jan 15; 45(2): 762-768.

Allen, H.J., Impellitteri, C.A., Macke, D.A., Heckman, J.L., **Poynton, H.C.**, Lazorchak, J.M., Govindaswamy, S., Roose, D.L. & Nadagouda, M.N. (2010). Effects from filtration, capping agents, and presence/absence of food on the toxicity of silver nanoparticles to *Daphnia magna*. *Environ Toxicol Chem*. 29(12): 2742-50.

Garcia-Reyero, N*, **Poynton, HC***, Kennedy, AJ, Guan, X, Escalon, BL, Chang, B, Varshavsky, J, Loguinov, AV, Vulpe, CD and Perkins, EJ. Biomarker Discovery and Transcriptomic Responses in *Daphnia magna* Exposed to Munitions Constituents. *Environ Sci Technol*, 2009 Jun 1; 42(11): 4199-93. (*authors contributed equally to publication)

Poynton, HC and Vulpe, CD. Ecotoxicogenomics: Emerging Technologies for Emerging Contaminants. *J American Water Resources Association*, 2009 Feb; 45(1): 83-96.

Poynton, HC, Loguinov, AV, Varshavsky, JR, Chan, S and Vulpe CD. Gene expression profiling in *Daphnia magna* Part I: Concentration Dependent Gene Expression Profiles Provide Support for a No Observed Transcriptional Effect Level in *Daphnia magna*. *Environ Sci Technol*, 2008 Aug 15; 42(16): 6250-6.

Poynton, HC, Zuzow, R, Loguinov, AV, Perkins EJ, and Vulpe CD. Gene expression profiling in *Daphnia magna* Part II: Validation of a copper specific gene expression signature with effluent from two copper mines in California. *Environ Sci Technol*, 2008 Aug 15; 42(16): 6257-63.

Poynton, HC, Wintz, H, and Vulpe, CD. Progress in Ecotoxicogenomics for Environmental Monitoring, Mode of Action, and Toxicant Identification. In *Advances in Experimental Biology 2: Comparative Toxicogenomics*; Hogstrand, C, Kille, P, Eds.; Elsevier: Oxford, 2008; Vol. 2, pp 21-73.

Perkins, EJ, Denslow, N, Chipman, JK, Guiney, PD, Oris, JR, **Poynton, HC**, Robidoux, PY, Scroggins, R, Van Der Kraak, G. Application of Genomics to Assessment of the Ecological Risk of Complex Mixtures. In *Genomics in Regulatory Ecotoxicology: Applications and Challenges*; Ankley, GT, Miracle, AL, Perkins EJ and Daston, GP Eds.; SETAC Press: Pensacola, 2008, pp 87-122.

Poynton HC, Varshavsky JR, Chang B, Cavigliolo G, Chan S, Holman PS, Loguinov AV, Bauer DJ, Komachi K, Theil EC, Perkins EJ, Hughes O, and Vulpe CD. *Daphnia magna* Ecotoxicogenomics Provides Mechanistic Insights into Metal Toxicity. *Environ Sci Technol*, 2007 Feb 1; 41(3): 1044-50. (Included in the “Top Ten Most Cited Papers of 2007” in *Environ Sci Technol*)

De Freitas JM., Kim JH, **Poynton HC**, Su T, Wintz H, Fox TC, Holman PS, Loguinov AV, Keles S, Van Der Laan M, and Vulpe CD. Exploratory and confirmatory gene expression profiling of mac1. *J Biol Chem*, 2004 Feb 6; 279(6):4450-8.

De Freitas J, Wintz H, Kim JH, **Poynton H**, Fox T, and Vulpe C. Yeast, a model organism for iron and copper metabolism studies. *Biometals*, 2003 Mar; 16(1): 185-97.

Zhang ZP, Hutcheson JM, **Poynton HC**, Gabriel JL, Soprano KJ, and Soprano DR. Arginine of retinoic acid receptor beta which coordinates with the carboxyl group of retinoic acid functions independent of the amino acid residues responsible for retinoic acid receptor subtype ligand specificity. *Arch Biochem Biophys*, 2003 Jan 15; 409(2):375-84.

INVITED SEMINARS

Poynton, HC, Molecular Ecotoxicology: the Use of Genomic Transcriptomic Approaches in Environmental Sciences. Invited Seminar, Department of Forestry and Natural Resources, Purdue University, Sept. 13, 2011.

Poynton, HC, Lazorchak, JM, Zuzow, R, Impellitteri, CA, Smith ME, Hammer, KA, Varshavsky, JR, Chan, S, Loguinov, AV, Vulpe, CD. Ecotoxicogenomic Approaches for Biomarker Discovery and Environmental Monitoring of Metal-based Nanomaterials. Invited Seminar, Department of Plant and Soil Sciences, University of Kentucky, Feb. 6, 2009.

Poynton, HC, Lazorchak, JM, Impellitteri, CA, Allen, JH, Smith, ME, Hammer, KA, Zuzow, R, Varshavsky, JR, Chan, S, Loguinov, AV, Vulpe, CD. Small, smaller, nano! A *Daphnia magna* DNA microarray for Biomarker Discovery and Environmental Monitoring of Metal-based Nanomaterials. Invited Seminar, Bren School of Environmental Science and Management, University of CA, Santa Barbara, Feb. 25, 2009.

WORKSHOPS

Barber, D, **Poynton, HC**, Unrine, JM and Varma, RS. Nanotechnology Primer 101. Workshop organized for the Ohio Valley Society of Environmental Toxicology and Chemistry. Cincinnati, OH, September 2009.

SELECTED PRESENTATIONS

Poynton, H., Robinson, W. Blalock, B. and Hannigan, R. Transcriptomic Responses to Metal Bioaccumulation in the Blue Mussel *Mytilus edulis*. Oral Presentation at the Society of Environmental Toxicology and Chemistry Annual Meeting, Boston MA, November 2011.

Poynton, H.C., Lazorchak, J.M, Impellitteri, C. A., Smith, M. E., Rogers, K., Allen, H.J., Patra, M., Hammer, K.A. A Genomic Approach for Biomarker Discovery and Exposure Monitoring of Metal-based Nanomaterials in Surface Waters. Oral Presentation at the Society of Environmental Toxicology and Chemistry Annual Meeting, Portland, OR, November 2010.

Poynton, H.C. Introduction to Environmental Benefits and Implications of Nanotechnology. Oral Presentation at the Ohio Valley Society of Environmental Toxicology and Chemistry Annual Meeting, Cincinnati, OH, September 2009.

Poynton, H.C., Impellitter, CA, Allen, HJ, Patra, M, Rogers, K, Smith, ME, Hammer, KA, and Lazorchak, JM. A Spinelss Examination of Metal-based Nanoparticle Toxicity and Mode of Action through Toxicity Testing and Gene Expression Analysis. Oral Presentation at the Society of Environmental Toxicology and Chemistry Annual Meeting, Tampa, FL, November 2008.

Poynton, H.C., Impellitteri, CA, Allen, HJ, Smith, ME, Hammer, KA, Lazorchak, JM. Comparison of Gene Expression Biomarkers of Metal-based Nanoparticles and their Corresponding Metal Ions. Oral Presentation at the Society of Environmental Toxicology and Chemistry World Congress, Sydney, Australia, August 2008.

Poynton, H., Chan, S., Varshavsky, J., Kennedy, A. Guan, X., Steevens, J. Loguinov, A. Perkins, E., Vulpe, C. Ecotoxiogenomic Approaches to Biomarker Discovery in *Daphnia magna*. Invited Oral Presentation at the Society of Environmental Toxicology and Chemistry Annual Meeting, Milwaukee, WI, November 2007.